

85509




Class _____ *No.* _____

Presented by

The Editor.

3-



Digitized by the Internet Archive
in 2014

THE Virginia Medical Semi-Monthly.

(FORMERLY VIRGINIA MEDICAL MONTHLY.)

Vol. 17, No. 1.

Whole No. 385.

RICHMOND, VA., APRIL 12, 1912.

\$2.00 a Year.

10 Cents a Copy.

Original Communications.

AFTER-CARE OF ABDOMINAL SECTIONS.

By JOS. T. BUXTON, M. D., Newport News, Va.

Surgeon-in-Charge, Elizabeth Buxton Hospital; Vice-President, Medical Society of Virginia, etc.

Oliver Wendell Holmes, in his "Currents and Counter-currents" in *Medical Science*, says that "a medical man, as he goes about his daily business after twenty years of practice, is apt to suppose that he treats his patients according to the teachings of his experience. No doubt this is true to some extent; to what extent depending much on the qualities of the individual. But it is easy to prove that the prescriptions of even wise physicians are very commonly founded on something quite different from experience. Experience must be based on the permanent facts of nature. But a glance at the prevalent modes of treatment of any two successive generations will show that there is a changeable as well as a permanent element in the art of healing; not merely changeable as diseases vary, or as new remedies are introduced, but changeable by the going out of fashion of special remedies, by the decadence of a popular theory from which their fitness was deduced, or other cause not more significant. There is no reason to suppose that the present time is essentially different in this respect from any other. Much, therefore, which is now very commonly considered to be the result of experience, will be recognized in the next, or in some succeeding generation, as no such result at all, but as a foregone conclusion, based on some prevalent belief or fashion of the time."

In the selection of this subject for your consideration, I have done so with the memories of untold suffering inflicted by the surgeon

upon the patient by the enforcement of certain unreasonable rules governing the post-operative care of laparotomies. It is not long since every such case was denied water for days at a time, compelled to assume the dorsal decubitus for an indefinite period, starved before an operation until there was little recuperative power left, denied any relief from pain by the administration of opiates, and in addition to this, after the first forty-eight or seventy-two hours subjected to untold misery by the administration of purgatives, high and low enemata and what not. This catalogue of melancholy suffering assumes a still darker aspect when we remember how kindly nature deals with these cases when let alone. While our after-treatment is somewhat less strenuous to-day than formerly, there is still room for improvement. These conditions have, no doubt, been made necessary in the evolution of modern abdominal surgery, just as in the early days of antiseptic surgery it was thought necessary, for the welfare of the patient, to operate in the presence of a carbolic acid spray. But these methods have been weighed in the balance and found wanting.

My purpose is to give a routine applicable to the simple uncomplicated celiotomies after operation.

Upon the conclusion of the operation, the abdominal bandage should be firmly applied, owing to the comfort obtained therefrom should there be vomiting, and also on account of the increased blood-pressure obtained.

The patient should then be transferred to a warm bed where he is placed upon his back with his head and shoulders slightly elevated for the first few hours. After reaction from the anæsthetic, two or three pillows are given and the patient propped up in bed, with the knees slightly flexed over a pillow. This posture renders the patient more comfortable and seems to prevent, to a certain extent, the

*Read before the forty-second annual meeting of the Medical Society of Virginia, at Richmond, October 24-27, 1911.

unbearable backache so often met with. It also favors intestinal peristalsis and peritoneal drainage.

Should the patient show evidences of collapse, the feet should be elevated and intravenous transfusion of salt solution or hypodermoclysis should be given in sufficient quantity to bring about reaction.

For continued nausea, gastric lavage with warm water or a 2 per cent. soda solution is used, and, should the nausea continue, this should be repeated every four hours. A second lavage is rarely necessary, owing to the fact that as soon as the stomach is relieved of the ether-laden mucus, the nausea quickly subsides. In those cases for which lavage is impracticable, a tumbler of hot water or hot soda may be given as soon as the patient has sufficiently regained consciousness to swallow. In the cases of hysterical vomiting, which are sometimes severe, morphine sulphate, in 1-4 grain doses, hypodermically, should be given and repeated if necessary. Certainly in post-operative vomiting, cathartics should not be given. I have never seen them fail to aggravate the condition.

For abdominal pain, I usually administer 1-8 grain of morphine, hypodermically, which I have repeated in one hour if necessary. The initial dose is sufficient in the great majority of cases. I never leave the administration of an opiate to the nurse and it is only given with my express authority.

Ochsner, of Chicago, gives from 1-8 to 1-4 grain of morphine, hypodermically, or from ten to thirty drops of deodorized tincture of opium in three ounces of normal salt solution, by rectum.

The Mayos give from 1-6 to 1-8 of a grain of morphine, but advise against its repetition, usually resorting to 1-2 grain dose of cordein after the first day.

Moynihan believes that the routine administration of this drug after abdominal operations is fraught with danger, believing that nausea, flatulent distention of the intestines, and inability to express flatus are all caused thereby. He prefers instead, ten grain doses of aspirin every two to three hours. Personally, I have never seen anything but good come from the administration of moderate doses of morphine during the first twelve or eighteen hours after operation, though I do not believe with some operators that it should be given in large doses

or repeated frequently or continued after the first twenty-four hours. By lessening pain we also lessen shock and the possibility of post-operative ileus.

Thirst is a symptom which is nearly always met with, and should be relieved by small quantities of water, frequently administered. Water is essential for proper elimination. If the patient has had a toxic anaesthetic, like ether or chloroform, it is beneficial both by mouth in the form of hot water and by rectum in the form of normal salt solution. I give my cases two teaspoonfuls of hot water as soon as desired. This may be increased to one or two ounces in three hours.

Bloodgood, in a very excellent article appearing in *International Clinics*, volume one, twenty-first series, says that observation has demonstrated that all patients are more comfortable after operation when the quantity of urine voided is over 1200 c.c. If less, they usually complain of some discomfort, such as pain in back, nausea, headache, restlessness, and inability to sleep. The most certain way to increase elimination is by the continued administration of salt solution by rectum. If this is not retained, it should be given subcutaneously.

The passage of gas by rectum is usually suspended for several days after abdominal sections; ordinarily this requires no treatment, because it produces no special discomfort. Should there be much distention, a simple enema or the introduction of a rubber or glass tube into the rectum is usually sufficient to expel the flatus and relieve the pain. This may be repeated as often as necessary, or the tube may be allowed to remain in the rectum. I employ in these cases a low enema consisting of two ounces of glycerine and one pint of water. I have also found sulphate of eserine of distinct benefit. Cases of marked distention may frequently be anticipated by the fact that it occurs more frequently in those of low muscular tone and after operations in which there has been much exposure or handling of the viscera.

The question of nourishment in post-operative sections is one for which no fixed rule can be laid down. Time was when we starved our patients so extremely, both before and after operation, that they showed evidences of acidosis after operation. Believing that post-operative vomiting called for the total with-

drawal of food, this intoxication was increased by further starvation. An index of starvation is evidenced by the presence of acetone and diacetic acid in the urine. In these cases bicarbonate of soda, one to two drams a day, is indicated, and starchy foods should be given by preference. At the present time I believe the tide has turned in the other extreme and that they are frequently over-fed. There is a happy medium in every case and each patient should be studied with that end in view. In a personal communication from Dr. A. J. Ochsner, he states that his patients are given broths, or beef tea every three hours on the second and third days. Later they are given gruels made without milk, still later butter-milk, and later milk. He does not give them solid food for the first week. The Mayos keep their patients on light diet for the first three days, after that they are allowed to eat pretty much what they please.

As a rule, catharsis, after the operation of opening the peritoneal cavity, should not be resorted to until the fourth day, unless there has not been pre-operative preparation. It should be remembered that ordinarily the patient's intestinal tract has been thoroughly cleansed before operation, and that his diet has been decidedly restricted since operation; therefore, a bowel movement is not indicated. Ochsner allows his patients to go a week or longer without opening the bowels. I am in the habit of administering on the morning of the fourth or fifth day two ounces of castor oil, which I have found very efficacious.

I do not catheterize these patients unless absolutely necessary. If the patient is suffering and hot fomentations do not give relief, or if the patient has gone twenty-four hours without voiding, I resort to catheterization.

The time for detention in bed varies considerably, and is influenced by the character of the operation as well as the condition of the patient. The average time has been materially shortened within the past few years and I believe justly so, as they were formerly kept in bed much longer than necessary. I do not favor the practice of some surgeons, of allowing their patients out of bed at the end of twenty-four or forty-eight hours. This is only another example of the extremist and can only be conducive of evil in the long run.

Particular attention should be paid to the

cleansing of the mouth and teeth of laparotomy patients, as it adds materially to the comfort of the patient.

Finally, I would say that the purpose of this paper has been to show the two extremes which have been attained by surgeons of note in the post-operative treatment of these cases; that our treatment should be found upon reason, and that we should at all times try to follow the middle of the road.

DIAGNOSTIC VALUE OF HEMIANOPSIA.*

By TOM A. WILLIAMS, M. B., C. M., Edin., Washington, D. C.

Corresponding Member, Society of Neurology and Psychology, of Paris, Neurologist to Epiphany Free Dispensary, etc.

Hemianopsia, the inability to see properly upon one side, is a neurological sign often overlooked unless specially examined for. It is a sign, however, of great import, and may be detected in a few moments without special apparatus. So it should always be looked for in cases presenting cerebral symptoms; for lesions from the occipital to the frontal lobe may cause the sign, and it has great localizing value as regards the side of the brain affected; and in conjunction with other signs it may enable the diseased lobe to be certainly determined.

To find it when present, the patient is directed to look straight between the observer's eyes, and to immediately grasp with either or both hands any moving object as soon as he detects it. Then the observer's hands, stretched on each side behind the subject's head about two feet away from it, are gradually brought from behind until they impinge upon the edge of his visual field. Meanwhile, a slow wriggling movement is imparted to the fingers, which at once attracts the attention of a normal person as it reaches the angle where its image can reach the retina. If there is any hemianopsia, the patient will not perceive the hand on the affected side (*i. e.*, the side opposite the brain or optic tract lesion) until long after the hand has passed the normal angle as ascertained upon the healthy side.

The following cases illustrate two of the rarer causes of hemianopsia:

VARIABLE MIGRAINOUS RECURRENT PARALYSES
FOLLOWED BY PERMANENT INCOMPLETE
LATERAL HOMONYMOUS HEMIANOPSIA.

A dentist, 39 years of age, referred by Dr.

*Read before the Philadelphia Neurological Society.

Sterling Ruffin on December 2, 1910, had a sudden headache, followed by a blurring of vision, and then by lateral blindness. The diagnosis made before he came to me was thrombosis of a sclerotic vessel. Blood pressure 120, no albumen or sugar in the urine, and heart was normal. The reflexes were said to be exaggerated. The attack occurred while he was dressing, with a sudden headache. The history showed attacks of migraine. During these he would be totally blind a half hour, then would come nausea and vomiting. He used also to have attacks of numbness in the arms. These had ceased some years ago. His father, now aged 70, and his sisters, aged 35 and 45, were each subject to similar attacks of migraine, with blurring of vision and seeing with only half the visual field. A brother who was drowned is not believed to have had similar attacks, nor does his mother have them. History of grandfathers and grandmothers unknown. Four years ago he lost power of right side for some hours. His memory was impaired, and he felt unable to use the right word, but by making an effort he could find the right words. He sometimes had similar paralytic attacks in the arm, but cannot say whether right or left. He thinks right. During these attacks he could not find the buttons of his vest. Evidently an astereognosis was present. They would last about five minutes. One year ago he had an attack in the left arm. He was reaching up for a garden rake and found that instead of grasping the rake he missed it. In other words, it was an attack of apraxia, for when he touched the rake he found he could grasp it quite well, and on that occasion there was no peculiar sensation in hand or arm. He says if he had not used the arm he would not have known anything was the matter, but on attempting to use his arm he detected the peculiarity. With this attack there was no headache or nausea; on the contrary, during attacks of numbness he could move quite accurately. However, when he touched his clothing with his hands during the numb attacks he became nauseated and a headache would follow. There was always hemianopsia after these attacks. When he was young, sometimes these attacks extended to the tongue. He could not say whether the whole tongue or whether only the front or back of the tongue was affected. He never had motor or sensory aphasia with these attacks. On one occasion he could not express his thoughts perfectly, and

there was a sticking and confusion when he could not do so. He could not get the word out, but no wrong word came. With these attacks there was no unconsciousness. He used his will to overcome his alarm at them, knowing by experience that they would shortly disappear. During one of his right hemiplegic attacks the voice became high pitched for a minute.

These attacks were said to be due to over-smoking. He is not sure that they were; but he treated by abstaining from tobacco. He now smokes four to six cigars a day. His habits otherwise are quite healthy. His feet are always cold and perspire readily. His skin bruises easily. On examination the deep reflexes were exaggerated. The plantar reflexes ambiguous. Sensibility and motility normal. There was no Chvostek sign; slight scoliosis to the left; pupils reacted normally and promptly. There was a complete right hemianopsia, so much so that he was unable to see his patient's teeth. Optic papilla is normal.

He was advised to stop tobacco; and I told him that I believed the hemianopsia would diminish as the effects of these migrainous attacks had ceased, for I did not think it was due to thrombosis or a sclerosed artery. He has returned to work, able to see in this fine work; but at last report he had still partial hemianopsia. I do not wish to enter into speculative matters as to the pathogenesis of these attacks of paralytic migraine, but simply to record the facts concerning a case of the graver type of hemicrania.

Temporary hemianopsia attacks in migrainous subjects are by no means rare. They are often accompanied by paraphasia of the jargon type. They are almost invariably followed by an attack of severe hemicrania, usually with vomiting. They may even occur in subjects not markedly migrainous. I have observed a case in which they occurred only during gestation, the headaches which occurred at other times not being preceded by hemianopsia. Their mechanism, like that of migraine, is not clear, although there are strong grounds for believing them of toxic origin. They occur also in uremia, although then they may be due to œdema of vascular alterations.

Permanent hemianopsia is, of course, due to organic defect. It may result from destruction of the cuneate lobule in the occipital lobe, which is the cortical centre for sight; or it may be caused by a lesion in the white matter contain-

ing the fibres which run to the calcarine fissure there, around which the centre is situated. These fibres form a tract which runs from the region of the colliculi, geniculata and pulvinar, forwards and laterally into the frontal lobe, looping round the ventricle, then backwards lateral to it through the temporal lobe and occipital lobe.

The most common lesion to cause hemianopsia is necrosis from hemorrhage or vascular occlusion. New growths, too, by pressure or destruction of this inferior longitudinal fasciculus, frequently cause an incomplete bilateral homonymous hemianopsia.

SIMULATED QUADRANTIC HEMIANOPSIA.

An ex-sailor of 41 was referred by Dr. Henning, to whom he had been sent by Dr. Burch, because of inability to perform more than light work. He has a small pension and *has applied for an increase*. He declares that he was believed epileptic in the Navy, and that since the accident of falling out of his hammock while asleep fifteen years ago (from which he became totally blind, remembering nothing), life has seemed a dream, it is hard to understand people, his memory is poor, and he is very nervous on the street, not being able to see out of one side of the eye, and bumping into objects.

As the hemiopic person usually carries his head turned towards the side of the sound retina and has to turn his head still further to see objects on that side of him, I suspected this man at once, for there was no deviation of the head. I accordingly nonchalantly asked him to move a dark screen so that he could be hidden while stripping. He did this in a dark corner without any head movement to indicate loss of vision in the periphery of either visual field. But on approaching the field with test objects in the usual way, he declared that objects were only seen as they impinged upon the right upper retinal quadrant, *i. e.*, below and to the left.

As to his apparent good faith there was added a loss of the right Achilles reflex, and some inequality of others, along with an uncertainty of the sensibility to the diapason on the mallei; it was necessary to confirm either the patient's opinion that his visual field was restricted or my own that it was not.

As the pupils reacted normally and the optic papilla was not diseased, an anterior lesion was excluded. The diagnosis of simulation was

clinched by his winking when I placed before the right field of the right eye the percussion hammer with which I was ostensibly testing the orbicular response to a tap on the facial nerve. This took place, both from above and below, on the left and right side, and conclusively proved that he actually perceived objects with all parts of the visual field.

It is hardly conceivable that such a syndrome had occurred by suggestion in medical examination, and I believed that it was intentional. This was proved when he visited me for the second time, after I had told his doctors what I had found, for on presenting the hammer in the same manner as before no wink occurred, the patient staring fixedly before him and declaring that he saw nothing except when the hammer was below to the left. It was, however, easy to show that he was feigning by holding opposite the mid-horizontal plane of the eyeball just within the visual field two strips of color. He saw only the one color, and when they were reversed similarly, *he saw the color which impinged upon the blind field*, and not that upon the field which saw. Hence his feigning was deliberate, as he had suppressed the reaction by which it had been formerly detected, and yet still showed, unknown to himself, that his blind field saw.

REFERENCES.

See also author's papers—Differential Diagnosis of Organic and Functional Motor Disorders, *Archiv. Diagnosis*, Oct., 1908; Traumatic Neurosis, *Med. Record*, Oct., 1909; and Hysteria, *Internat. Clinics*, Oct., 1908; *Amer. Jour. Med. Sci.*, Aug., 1910.

1758 K Street, N. W.

REPORT OF A CASE OF MYOSITIS OSSIFICANS PROGRESSIVE FOLLOWING HOOK-WORM DISEASE.*

By J. C. WALTON, M. D., Richmond, Va.

This case is of interest because of its extreme rarity, and is the first recorded case following hook-worm infection. As this disease was undoubtedly caused by hook-worm infection, it will serve to emphasize the importance and the gravity of this very serious affection.

It is conservatively estimated that there are at present more than two million cases of this disease in the country, and it has been devastating especially many sections of our beloved Southland.

*Read before the forty-second annual meeting of the Medical Society of Virginia, at Richmond, October 24-27, 1911.

My first knowledge of hook-worm dates from an address before the North Carolina State Medical Society by Dr. Stiles in 1902. I next had the good fortune to hear Dr. Bagby's classical clinical reports at the Charlottesville meeting of our State Society, and from the very enthusiastic reception of that paper I have always considered Dr. Bagby as the pioneer in this work in Virginia. Much credit is due him for calling the attention of our Society to this dreaded and until recently unrecognized disease.

Mr. M. L. P., of Fountain, N. C., was referred to me August 20, 1910, by his physician, Dr. J. E. Patrick, of Farmville, N. C. Occupation, farmer; age 30. Mother living, health good. Father died at 60, of paralysis. Of the seven members of his family all save one had hook-worm disease. He had always been healthy until about two years previous; went barefoot until he was 20 years old, and had toe itch as a child.

The disease first manifested itself by weakness and emaciation. There was a swelling and inflammation in the nails and fingers of both hands, resembling somewhat a scleroderma dactylitis. This swelling gradually extended as high as the elbows; later the feet and legs became involved, and finally the muscles of the neck, back, and face. There was very considerable atrophy of the muscles of the back, and this was so marked in the face as to produce a "risus sardonius," which gave him a rather repulsive appearance. There was stiffness and rigidity of the spine and limbs. A distinct wooden feeling about the limbs made them feel like cold wet plaster casts, and the bony like hardness and induration was very distinctive and marked.

Indolent and foul ulcers had formed on the bony prominences of the wrists and elbows from pressure on the skin. The circulation was so poor that the slightest undue pressure would start an ulcer that would not heal.

Notwithstanding the mercury was around the ninety mark, the patient's suffering from chilly sensations and cold was pitiable, this being more marked in the upper than in the lower extremities (the symptoms are always worse in the upper extremities).

The surfaces of the feet were sore and tender, and there was some desquamation of both feet.

Temperature was normal; reflexes absent; pulse 100; tension, right arm, 160; left arm, 112; appetite good and digestion apparently

good; urine normal. Former weight, 145; weight on admission, 111; weight when discharged, 115.

There was no question of the serious involvement of the trophic centres. Patient was shown to the Hook-Worm Congress which met in Richmond, and to the Richmond Academy of Medicine, and also to quite a number of other physicians. After weighing carefully the pros and cons with the scanty literature on this subject, the consensus of opinion was that it was undoubtedly a case of myositis ossificans progressive.

In this connection I wish to return my grateful appreciation for the very valuable help in making the blood tests, also in helping to clear up the very many difficulties in making the differential diagnosis, to our distinguished fellows, Drs. Baughman and Shepherd.

As this was a very interesting case to study from a scientific standpoint, we tried to get him admitted into the Rockefeller Institute for Scientific Research. Knowing of Mr. Rockefeller's interest in the study of hook-worm disease, we were hopeful of doing so, but unfortunately failed to get him admitted. As he had no means, we had to send him home.

There was some temporary improvement under the use of static electricity and radiant heat and light. He was more comfortable, the ulcers showed signs of healing, and he suffered much less from chilly sensations. Fully realizing the nature of the disease, we confidently relied on getting some sections from the autopsy, which we all felt was only a matter of a short time.

A recent letter from Dr. Patrick describes the sad ending of this case. "Paeden died this summer. Before death his penis became so swollen that the prepuce became gangrenous and sloughed off; limbs swelled as much as dense hardened tissue would allow expansion. The symptoms of ossification continued, tightening more and more and restricting the movements of the abdominal and respiratory muscles and embarrassing respiration and digestion.

"Facial muscles and limbs became more rigid and were strikingly contracted. His death was due to starvation, and he was rational to the last.

"I asked for an autopsy and was granted it, but reports became common that the hospital wanted his body and had offered \$1,000 for it, or \$2,000 for his legs and arms, etc., *ad nau-*

scam, so I became disgusted and got no sections at all. Such a pity such superstition. Will we ever live to see them dead?"

Diagnosis.—Butler's *Diagnostics of Internal Medicine* says of myositis ossificans progressive: "This rare disease appears as a tumefaction of the muscles of the back of the neck. After the swelling subsides the muscle is found to be permanently hardened and a progressive substitution of bony for muscular elements takes place; muscle after muscle becomes invaded until the entire system is involved. After a year or more death ensues." Pruden and Delafield say: "Under conditions and for reasons which we do not understand, there occasionally occurs, usually in young persons, a new formation of bone tissue in the interstitial tissue of muscles, tendons, ligaments, fasciæ and aponeuroses. This sometimes apparently starts as outgrowths from periosteum, sometimes not.

"The bone formations are apt to commence about the neck and back, and may become widespread over the body. In the muscles there is usually increase of the connective tissue between the fibres and bundles, in which new bone is found, usually in elongated and sometimes in spicula-like form.

"The muscles undergo secondarily a greater or less degree of atrophy or degeneration. The above disease is progressive and frequently is a general one. There may be new formation of bone in muscle as a result of prolonged or repeated mechanical irritation, as in the adductors of the thigh in persons who are constantly in the saddle, or in the deltoid muscle of soldiers who strike the parts with their weapons in drill.

"Myositis ossificans progressive should not be confused with these local forms of ossifying myositis, or with calcifications occurring in the course of rheumatic, tubercular, or syphilitic disease, or from injury."

A very complete report of a case of myositis ossificans, illustrated with skiagraphs, by Dr. Elliott, of Chicago, appears in the *Journal A. M. A.*, September 9th. As this is the most elaborate and complete report on this rare disease that I have been able to find I shall take the liberty of quoting from Dr. Elliott's most excellent paper. "Myositis ossificans progressive is distinguished from the other localized forms by the fact that it commences early in life and progressively advances until the muscles are extensively involved; a great many of these cases

have congenital defects and malformations (about 75 per cent.). These consist of microdactylia, a shortening of the great toes and thumbs, and more rarely the little fingers, due to a dwarfing of the metatarsal and metacarpal bones, with subsequent ankylosis of the interphalangeal joint. The great toes are frequently directed outward, lying under the second toes, and giving rise to the deformity of hallux valgus.

"Other less frequent malformations are absence of certain muscles, absence of the lobules of the ear, absence of the superior incisor teeth, atrophy of the testicles and mammae and sexual infantilism.

"Ulcers form from pressure on the skin. The muscles most generally involved are almost the same, the trunk, upper extremities and neck. The lower extremities are not so frequently affected as the upper.

"The clinical course would indicate that myositis ossificans progressive is an inflammation, a progressive polymyositis, terminating eventually in certain involved areas in ossification.

"Etiology is unknown. Whether the tendency to aberrant bone formation is due to some inflammation, bactericidal or chemical agent affecting muscles which are endowed with a low resistance capacity, we are unable to say."

The history of this case would strongly indicate a bactericidal or a toxemic condition which was induced by a severe case of hook-worm infection. At this point it might be interesting to compare the blood picture of Dr. Elliott's case with the one I am reporting.

| His showed: | | My case showed: | |
|---------------------|-----|---------------------|-------|
| Polynuclears, | 70% | Polynuclears, | 69% |
| Large mononuclears, | 5% | Large mononuclears, | 6% |
| Lymphocytes, | 23% | Lymphocytes, | 18.5% |
| Eosinophiles, | 2% | Eosinophiles, | 10.5% |

According to Dr. Elliott, the first reported case of myositis ossificans progressive was in 1740, and there have been only 107 cases reported up to the present time.

Recapitulation.—The first physicians who saw this case did not recognize the disease, and the patient was treated for rheumatism and other similar conditions. Dr. Patrick only saw him after an illness of some duration, after the disease had made considerable inroads on his system. He had no difficulty in finding all of the usual clinical manifestations and in demonstrating the parasites and ova in the stools. The

case was so thoroughly treated by the doctor that we were never, after repeated examinations, able to find any evidences of hook-worm in the stools.

Owing to the large per cent. of eosinophiles in the blood, Dr. Baughman examined carefully for trichina, but was unable to find any evidences of trichina, so this disease and diffuse scleroderma were eliminated by exclusion.

Undoubtedly the depraved condition of the blood induced by the protracted and untreated hook-worm infection brought on a condition of low tissue resistance, that indirectly caused the serious disease that ended his life.

The lesson this case teaches us is to be always on the lookout for hook-worm disease, and a thorough examination of the stools and blood should be carefully made in all cases where there is the least reason to suspect hook-worm infection. This can in no case do harm, and it may in the end save the physician much mortification for having through carelessness overlooked a most serious and progressive disease that might have eventually cost the patient his life.

Eighth and Grace Streets.

MERCURIAL NEPHRITIS.*

By H. H. HAZEN, M. D., Washington, D. C.
Clinical Professor of Dermatology, Howard University.

Although mercury, as a cause of nephritis, was mentioned as early as 1812 by Wells,¹ and from time to time cases of mercurial nephritis have been reported in journals, yet the physicians at large seem to prescribe mercury in its various forms without assuring themselves that the patient's kidneys are capable of withstanding its use. With the exception of an illuminating article by Major Pollock² in the Power and Murphy System of Syphilis, practically none of the standard text-books upon dermatology and genito-urinary diseases give more than a line in cautioning against the use of mercury where there is a suspected nephritis.

Therefore, it may not be out of place to again call attention to the serious consequences that can follow the use of mercury, and to publish three illustrative cases. The first two of these are from the clinic of Dr. Gilchrist, at the Johns Hopkins Hospital, and I am indebted to him for permission to publish them.

Case 1.—The patient was a white woman,

aged 35, who came to the dispensary with a chancre upon her cheek and a macular eruption. She was put upon routine treatment, being given three times a day 1-16 grain of mercury bichloride and 10 grains of potassium iodide. The next week she was improved, but the following week her eyelids, feet and ankles were swollen and she complained that urination was infrequent and painful, and that the urine contained blood. Upon urinalysis it was found that the specific gravity was 1040, and that there was much albumin: microscopically there were present many hyaline and finely granular casts, numerous red blood cells, and a few white cells. The patient was admitted to the hospital with a diagnosis of acute nephritis, and speedily recovered after the mercury was stopped and a proper diet instituted.

The fact that the nephritis developed abruptly after the mercury was started and that it entirely cleared up after the withdrawal of the drug would seem to show beyond doubt that the nephritis was mercurial and not syphilitic in origin.

Case 2.—The patient was a Pole, aged 32, who came to the dispensary complaining that his skin was peeling off. He had been suffering from pediculosis pubis, and had been advised by a friend to shave and apply blue ointment. He followed the advice and within a week began to feel ill. He developed a severe cough with bloody expectoration, a bloody diarrhoea, scanty and painful urination, exfoliation of the skin, and stiff and painful knees and elbows.

Examination showed temperature 102°, pulse 120, respiration 32. Sputum was blood tinged, large moist and piping rales could be heard over the entire lung area. The urine was practically identical with that of the first case. Both knee and elbow joints were a trifle enlarged, and movement was distinctly restricted and painful. Over the entire body the skin was of a fiery red color and was desquamating in scales varying in size from one to twenty mm. The scales were harsh and dry and there were many excoriations from scratching. Where the scales had been removed the underlying tissue was moist and bleeding. The patient was admitted to the hospital, began to improve as soon as the mercury was stopped, and in two weeks was discharged as well.

Case 3.—The patient was a clerk, aged 66, who had acquired syphilis in 1862. He had

*Read before the Medical and Surgical Society of the District of Columbia, at Washington, D. C., November 2, 1911.

had very few secondaries, but in 1881 nodes and ulcers developed on the right leg. Since that time he had been constantly taking enormous doses of potassium iodide, with the quite usual result that the lesions would heal temporarily, but would again break down shortly after the iodides had been discontinued. Examination showed him to be a well developed man, with a slightly hypertrophied heart and very high blood pressure. The urine showed a specific gravity of 1012, no sugar, albumin, casts, red or white blood cells. On the calf of the right leg just below the knee there was a heavy infiltration 6 x 10 cm., not attached to the bone, and covered by a thick crust. There were some nodes upon the tibia. He was started upon mixed treatment consisting of 10 grains of potassium iodide and 1-10 grain of mercury bichloride daily. Ten days later it was noted that the lesions were better but that he was complaining of frequency of urination and pain on voiding. Urinalysis showed specific gravity 1025, much albumin, many hyaline, finely and coarsely granular, and epithelial casts, and some Tripper-faden. Temperature pulse and respiration were normal. Mercury was at once stopped. Two days later there was less albumin and the pain was subsiding. Two days later there was still less albumin but a considerable amount of pus. It was then that history of an old stricture was obtained. Three days later I was suddenly called because of shortness of breath, and found marked orthopnea and a weak and irregular heart action, when I at once called Dr. H. P. Parker in consultation. In three weeks the patient died from a very evident break in cardiac compensation. We both felt that the acute nephritis that had been set up by the mercury had overtaxed a heart that was already strained to the limit, and that the break in compensation had followed.

Etiology.—For more than seventy-five years there has waged a discussion as to whether mercury or syphilis was responsible for the nephritis that sometimes occurs with secondary syphilis. For many years it was believed that mercury did not damage the kidneys, but the age of experimentation has changed this belief, and should thereby save many lives. In an admirable review of experimental nephritis, Pearce³ points out that many observers have caused acute nephritis by the use of bichloride of mercury, though it is still doubtful whether chronic

nephritis can be so produced. Klienberger⁴ has studied the urine of thirty-one patients, twelve of whom were non-syphilitic, treated by inunctions, and found that most of them showed evidences of kidney irritation. We can now definitely assert that mercury can and does cause acute nephritis, though we must of course admit that syphilis frequently does the same thing.

Pathology.—In the animals that have been poisoned with bichloride, the lesions are chiefly located in the epithelial lining of the loops of Henle, the severity of the lesions depending upon the dosage; these lesions may go on to calcification. Concerning the lesions in man there is some discrepancy of opinion. Ophuls⁵ states that the lesions are similar to those in animals, but Stein⁶ reports the following case: The patient was a twenty-six year old woman with a recent syphilitic infection, who was treated by inunctions. After twenty-four treatments there appeared an exfoliating dermatitis that ultimately became hemorrhagic, accompanied by fever and bronchitis, bloody diarrhoea and a greatly decreased, albumin-free, urine. Death soon followed. At autopsy there were found hemorrhages into the muscles, pericardium, kidneys and liver, and hemorrhagic vesicles of the small intestine. In the kidneys the changes were essentially interstitial and only to a slight degree parenchymatous. The epithelium of the tubules was normal, but there were profuse hemorrhages into the tissues between the tubules: there was no inflammatory infiltrate. Further observations upon man are needed.

Diagnosis.—It is very important to know whether the nephritis is of syphilitic or of mercurial origin, for the treatment of the two conditions is very different. Unfortunately it is often impossible to tell the two apart. A urinary examination should always be made before administering mercury; this may show an existing nephritis. In general it may be said that the onset of mercurial nephritis is usually abrupt, and follows shortly the administration of the drug, whereas syphilitic nephritis has a more gradual onset. Mercurial nephritis is made worse by the continued administration of the remedy, whereas syphilitic nephritis may be helped. Mercurial nephritis may clear up soon after the metal is discontinued. The albumin of specific kidney lesions may be very much greater than that found in mercurial le-

sions, in fact greater than that in any other form of nephritis. And, lastly, there are some observers who believe that œdema is rather uncommon in the luetic kidney lesions.

Treatment.—It is of the greatest importance that a urine examination be made before mercury is administered; if albumin is present, the physician must feel his way very carefully. Nor is this all that is necessary, as mercurial nephritis develops very rapidly, and as it is prone to manifest itself soon after the drug is started, two examinations should be made in the first week and one each following week for at least the first month of the administration of the drug. Also, mercury should never be begun in the huge doses recommended by some syphilographers; to do so might cure the symptoms, but kill the patient.

I cannot do better than quote the words of Pollock who makes the following recommendations:

1—"If nephritis be suspected, further examinations of the urine and of the patient may settle the question. When nephritis is present, no mercury is to be given; if there is any doubt on the matter, a tentative dose of say one-quarter of the usual one, or even less, may be given, preferably by the mouth, and a daily examination of the urine made to note the effect. * * *.

2—"When albuminuria not due to nephritis is present, the first dose of mercury, in whatever form administered, should be not more than one-quarter of the usual dose. After a few days the urine should again be tested quantitatively for albumin. If this was due to syphilis a rapid diminution and total disappearance of the albumin will be found, in which case the ordinary treatment can be carried out.

3—"Functional albuminuria is not of much consequence; it demands however a more careful watch on the urine, any increase of the albumin being an indication to reduce the dose. * * *."

It is difficult to say whether salvarsan is applicable in nephritis, for Gottheil's⁷ observations certainly show that kidney irritation is caused by its use. Once mercurial nephritis is established, it should be treated along the same lines as acute nephritis. Where there is arteriosclerosis and high blood pressure, the prognosis is bad; in other cases the mortality is about 25 per cent.

While not bearing directly upon the subject

of mercurial nephritis, it is impossible to close the paper without additional reference to the clinical findings in my second case. It must be remembered that the body has four main paths of excretion: the bowels, the kidneys, the lungs, and the skin. In this case it would seem certain that after the mercury had been absorbed it was excreted by all four of the above paths, and that in passing through each of them it set up an active inflammation. As it passed through the intestine it set up an enteritis; as it passed into the kidney it set up a nephritis; as it passed through the lungs it set up a bronchitis, and as it passed through the skin it set up a dermatitis. Probably some of it was secreted by the synovial membrane of the joints and in so doing set up an arthritis. Now if a toxic drug will set up a dermatitis, why may not a bacterial toxin? It is more than probable that some of the skin eruptions that are heralded with a febrile onset are in reality simply the skin manifestations of a bacterial infection in which the toxin is excreted through the skin.

BIBLIOGRAPHY.

1. Wells. Trans. of a Soc. for Improvement of Med. and Chir. Knowledge, 1912, III.
2. Pollock. A System of Syphilis, (Power and (Murphy), VI, 225.
3. Pearce. *Arch. Int. Med.*, 1910, V, 133.
4. Klienberger, *Zeitschr. f. klin. Med.*, 1906, LVIII, 481.
5. Opuls. *Jour. Amer. Med. Assn.*, 1907, XLVIII, 483.
6. Stein. *Deutsch. Med. Wochschr.*, 1908, XXXV., 2126.
7. Gottheil. *Progressive Medicine*, September, 1911, 137.

1201 Eighteenth Street, N. W.

PRINCIPLES OF THE DIETETIC MANAGEMENT OF DIABETES.*

By E. GUY HOPKINS, M. D., Richmond, Va.

Professor of Clinical Pathology. University College of Medicine.

In spite of the large amount of work directed to finding a treatment for diabetes based on the etiology, our chief dependence in the therapy of the disease is still the regulation of the diet. Until recently the dietetic treatment has consisted simply in giving the patient a diet list from which foods of high carbohydrate value have been eliminated. Unless the case is a mild one, the glycosuria will not disappear on a diet of this sort. The loss of a large part of the caloric value of the food by excretion as sugar keeps the patient hungry, and the hun-

*Read before the Richmond Academy of Medicine and Surgery, February 13, 1912.

grier he gets the more he will eat, and the more he eats the more sugar he will excrete. If in an effort to lessen the glycosuria all the carbohydrates are now checked off the diet list, the result is disappointing. The patient will eat an excessive amount of proteid food. As 58.4 per cent of the proteid can be excreted by a diabetic as sugar, and as proteid is also a metabolic stimulant, thus increasing the mobilization of sugar, glycosuria will continue if the case is at all severe, and the acetone bodies will appear in alarming amounts.

If, however, we can reduce the amount of food to a point where its carbohydrate value is within the patient's ability to burn or store it, and at the same time give it sufficient food value to keep up the weight and strength of the patient, and enough carbohydrate to prevent acidosis, conditions become more favorable. The glycosuria disappears, the amount of sugar in the blood returns to normal, and, most important of all, there is a gradual increase in the power of the organism to utilize carbohydrates, so that soon the patient can take a much larger amount of bread without the appearance of sugar in the urine than when the diet was first begun.

In order to find a diet answering these conditions, it is necessary first to put the patient on a test diet of known composition to determine the nature of the case. Falta's test diet is the simplest and most convenient for this purpose. It is as follows:

| | |
|--|------------|
| Lean Meat | 250 grams. |
| Vegetables | 300 grams. |
| Butter | 150 grams. |
| Bread | 75 grams. |
| Four eggs and tea or coffee without sugar. | |

Part of the butter may be used in the preparation of the meat and vegetables. Only the muscular parts of lamb, beef, veal or fowl should be used for the meat; and the only vegetables allowed are cauliflower, cooked onions, cress, asparagus, and spinach, on account of their low carbohydrate value and comparative uniformity in their chemical composition. This diet contains approximately 57 grams of carbohydrate, and represents about 2,400 calories heat value. It is divided into three approximately equal meals, or, if the patient complains of hunger between meals, the eggs and some of the butter are given as lunches.

The patient is kept on this diet from three to five days, and the total amount of urine for

each twenty-four hours is measured each day and examined for the amount of sugar and approximate amounts of acetone and diacetic acid. At the end of the third or fourth day, when a new nitrogen equilibrium has been established and any excess of glycogen stored in the liver exhausted, we are in a position to determine the patient's tolerance to carbohydrates. If there has been a rapid drop in the amount of sugar excreted to four or five grams a day, the patient's tolerance is good, and he is utilizing all of the carbohydrate value of the proteid and part of the bread. The case under these circumstances is usually mild, and if bread is eliminated from the diet, the sugar will probably disappear promptly from the urine. The diet being now well within his limit of tolerance, recuperation will be correspondingly rapid. Fat meat and eggs may be added to the diet if its caloric value is below 35 calories per kilogram of body weight, and any sort of fish may be substituted for the meat. As soon as the patient has become accustomed to the amounts allowed, the scales may be dispensed with. As a rule, if the patient is past middle age, in two or three weeks as much as 150 grams of bread may be added to the diet without the appearance of sugar. If this is found to be the case, the equivalent sugar values in other carbohydrate foods may be substituted for part of the bread. The patient will now be able to get along very comfortably on this diet, and should be instructed very particularly against over-eating. In a few cases the carbohydrate tolerance may become nearly normal, and the patient will eventually be able to eat ice-cream, cake and candy without the appearance of sugar.

If the patient is a child, the test diet must be reduced to an amount corresponding to the age and weight of the patient. From the second to the fifth year, inclusive, four-tenths the amount for an adult is required; from the sixth to the ninth year, five-tenths; from the tenth to the eleventh year, six-tenths; from the twelfth to the thirteenth year, seven-tenths; at fourteen, eight-tenths; and from fifteen to sixteen, nine-tenths.

In children and adolescents the disease will usually be found more severe. At the end of the third or fourth day of the test diet, a considerable amount of sugar will be found, and on eliminating bread from the diet, the sugar

disappears very slowly or not at all from the urine. Under these circumstances it is unfair to judge the patient's tolerance by comparing the amount of sugar excreted with the sugar value of the carbohydrate part of the diet alone; the sugar value of the proteid should also be considered. In experiments on dogs from which the pancreas has been removed, and in extreme cases of diabetes, it has been found that on a meat and fat diet, 3.65 grams of sugar are excreted for every gram of nitrogen appearing in the urine. As proteid is 16 per cent. nitrogen, it is seen from the above that 58.4 per cent. of the proteid intake may be converted into sugar. Therefore, if the patient does not become sugar free immediately after the withdrawal of bread from the test diet, it does not indicate a total loss of the power to use carbohydrates, as there may still be a tolerance for an amount equivalent to the sugar value of the meat. In this case the sugar will disappear five or six days after eliminating the bread. In cases of this degree of severity, acetone and diacetic acid usually appear in the urine in abundance, and it is well to give enough soda to keep the urine neutral during the whole time the effort is being made to get the patient sugar free, so as to avoid the chance of acidosis. This may require from four to eight drachms in twenty-four hours.

If the sugar does not disappear after cutting out the bread, the meats will have to be reduced to half the amount. The caloric value of the diet must now be made up by adding fats. Butter is the most palatable, but if diacetic acid is present in very large amounts, it is, perhaps, advisable to diminish this and give an equivalent amount of the higher fats like fat pork and olive oil, as Schwartz has shown that these do not increase the acetone bodies to such an extent as butter.

After the patient has become sugar free, a careful watch should be kept on the body weight. If there is no gain, the fats must be still further increased, and also, with care, the proteids and green vegetables. When a diet has been found on which the patient is sugar free, gaining weight, and presents no symptoms of acidosis, it is kept up for a month. At the end of this time the carbohydrate tolerance is estimated by adding 15 grams of bread to the diet, and increasing this by 5 grams a day until sugar appears in the urine. One-half the larg-

est amount of bread which can be taken without the appearance of sugar is then added permanently to the diet, and the patient instructed to adhere to this diet for a year, with a two weeks period of bread-free diet every four months. Fruits and starchy vegetables may now be substituted wholly or in part for the bread in proportion to their carbohydrate value. The effect of milk on the excretion of sugar should be carefully watched, as lactose in some cases seems to produce glycosuria far out of proportion to its sugar value, as given in books on dietetics.

In those cases in which the patient cannot be kept sugar free, and in which acidosis seems imminent, or where the digestion becomes impaired, the oatmeal treatment promises the best results. As originally prescribed by Von Noorden, this consists of first cutting out meats and restricting the patient's diet to green vegetables, butter, and less than 50 grams of bread a day for two days; then giving 250 grams of oatmeal and 250 grams of butter for two or three days. The oatmeal is weighed dry, cooked in water for several hours, and the butter added after it has been cooked. The mixture is then divided into five equal parts, each part representing a meal, and all five to be given as a twenty-four hour ration. It is kept on ice until needed, and each portion is heated before serving. This is followed by a return to the strict vegetable diet for two days; then a mixed diet with a limited amount of meat. This course of treatment may be repeated three to five times in succession. Its effect on acidosis is immediate and striking. Frequently a patient excreting 20 grams of beta-oxybutyric acid per litre will become entirely free of acetone, and the ammonia will drop to normal; and in many cases the tolerance to carbohydrate will be increased so that the addition of small amounts of bread to the diet will not produce glycosuria.

If, then, we are to prescribe a diet of the greatest advantage to the patient, we must study each case individually. The ideal diet is one on which the patient is gaining weight, feeling well, and presents no glycosuria or excessive ketonuria. If we can attain this diet, we may hope to cure the patient, or at least increase his tolerance for carbohydrates to such an extent that he can eventually live with very little more restriction than an ordinary person. If all the conditions of the ideal diet cannot be realized,

we can at least prolong the patient's life for a longer or shorter period, and make it more comfortable than it would be otherwise.

CHRONIC NASAL DIPHTHERIA.*

By CLIFTON M. MILLER, M. D., Richmond, Va.
Professor of Diseases of the Nose and Throat, Medical College of Virginia; Rhinologist and Laryngologist to Memorial Hospital.

Primary nasal diphtheria, essentially chronic in its type, has been recognized for thirty years, the earliest reference to it being that of Mackenzie in 1880, and in his article he refers to a case of Isambert's in 1858. These cases, together with that of Demme in 1868, while not confirmed by bacteriological tests, were described by writers and clinicians of such decided ability that the correctness of their observations cannot be doubted.

The first scientific description of this condition is that of Concetti in 1891, since which time there have been numerous cases described in the literature on the subject; yet the general practitioner seems unfamiliar with the existence of the disease, which is probably the cause of many of the epidemics which we now have. It is always primary in the nose, and seems to have no tendency to spread into the pharynx.

Symptoms occasionally begin with a rise of temperature and chilly sensations, which pass off in the course of 24 hours, leaving no other discoverable symptom. In the course of two or three days the nasal obstruction begins to be noticed, and there is increased discharge, which is sometimes bloody, according to the statements of Harry. In the experience of the writer such has not been the case. Harry also finds that earache is usually the first symptom which calls attention to the condition. Hubbard does not mention earache, and my own cases were more of the type of those described by the latter.

The discharge is most often serous in character, though it is sometimes muco-purulent and very acrid, the margins of the nostrils and upper lip being excoriated by it. These patients have not been sufficiently sick to be confined to the house or to the bed, the symptoms being the result of the nasal obstruction with its attendant discomforts rather than such as would be caused by diphtheritic toxæmia.

The diagnosis of foreign body in the nose is

*Read by title before the Tri-State Medical Society of the Carolinas and Virginia, at Columbia, S. C., February 21-22, 1912.

Note.—This paper was prepared as a candidate's thesis for the Amer. Laryng., Rhinol. and Otol. Society.

often made on account of the above symptomatology. Two of my cases were brought to me with this diagnosis. Examination of the nose shows the false membrane entirely confined to the nasal chambers with no tendency to spread downward to the pharynx. The disease is often confined to one nostril.

A second type without the membrane is found, and bacteriological examination shows the bacilli of diphtheria. There is a possibility that this class of cases belongs to the class of persistent diphtheria bacillus in the nose, they having been proven to persist there for long periods of time, as in the case of LeGandre and Pochon, quoted by Glatard, where the bacilli were found persistently for several years.

The diagnosis of this condition is fraught with some difficulties, and cannot be positively made without a careful rhinological examination and the taking of a culture. It is usually found in children under the age of seven, one case, that of Grunwald, being reported in an adult.

The prognosis, both as to life and any unfortunate sequelæ, is good, death rarely occurring and paralysis being almost unknown. When death does occur, it is usually among infants or children under three years of age.

Case 1.—E. W., age 5, was referred to me in July, 1907, on account of nasal obstruction. With the exception of the condition which I was called to see, the child was feeling perfectly well, running and playing about the room. One week previous to my visit it had had a temperature running to 102 degrees F., accompanied by malaise, which lasted but one day. The temperature early subsided upon the administration of calomel and did not return. Examination revealed excoriation of the upper lip and nares, as well as a thin serous discharge from the right nostril with some admixture of muco-purulent material. Rhinological examination showed exudate upon the inferior turbinate and complete nasal obstruction of the right side, the left side being entirely free from either obstruction or pseudo-membrane. Culture made from the right nostril showed the presence of the Klebs-Loeffler bacillus. The administration of anti-toxin completely cured the case in a week.

The source of infection in this case was a shop keeper, to whose place this child used to go to spend his pennies, he having had one of the most virulent cases of diphtheria that it has ever been my fortune to see in an adult.

Case 2.—W. M., age 3, was brought to me in July, 1909, the family physician having made a diagnosis of foreign body in the nose. There was no history except that of persistent nasal obstruction and slight acrid nasal discharge for the past three or four weeks. The upper lip was excoriated as well as the margin of the nares. The child was fretful, but had no rise of temperature, and the symptoms were such as would be present at any time as the result of nasal obstruction. This child was so intractable that it was necessary to resort to light anesthesia before a careful examination could be made. In the right side of the nose a false membrane entirely covered the inferior turbinate, and there was complete nasal obstruction. No obstruction in the left side was found. Bacteriological examination revealed the presence of Klebs-Loeffler bacillus, and complete recovery followed the use of antitoxin.

Case 3.—S., age 4 years, was brought to my office in September, 1909, also with a diagnosis of foreign body in the nose. The nasal obstruction was of four weeks duration. Here was also the excoriated upper lip and margin of the nose, with absolutely no history of any sickness or discomfort except such as was the direct result of the nasal obstruction. This was also an intractable patient, and to enable me to make a complete examination a few whiffs of chloroform were administered. Rhinological examination revealed the left nostril entirely occluded by pseudo-membrane, the right being unobstructed. Bacteriological examination showed Klebs-Loeffler bacilli. The case recovered completely after the use of antitoxin, though the injection had to be made twice.

In the first case the source of the infection was readily traceable, but this was not true of either case two or three.

In the second case, the physician was rather inclined to protest against the diagnosis of nasal diphtheria made before the bacteriological examination confirmed my finding; even then he was not entirely convinced until the child's father was taken with a case of acute pharyngeal diphtheria.

In the third case, the health officer of the small town from which the child was brought informed me that he traced at least five or six cases of diphtheria in that town directly to this case.

In none of these cases was there any bloody

discharge from the nose, though all of them had excoriation of the upper lip and false membrane in the nose well marked. The children were all able to be up and about their play and to associate with other children; hence were a grave menace to the health of a large number. Fortunately none were of school age, nor did any of the cases occur at a time when they might have been in kindergarten; therefore, the spread of the contagion was not so great as it might otherwise have been.

In the treatment of these cases a mild alkaline spray was used in addition to the antitoxin, and no other form of treatment was in any way necessary.

Simms says in twenty-three cases of atrophic rhinitis, a bacillus similar to Klebs-Loeffler was found, and in two of these cases inoculation of a guinea pig proved it to be diphtheria. His observations, however, lack confirmation by other observers, and it does not seem that the two cases in which diphtheria was proven are sufficient for us to draw a conclusion, the bacilli probably being incidental rather than causative. Kyle, in his text-book on the nose and throat, calls attention to the frequency with which this bacillus is found in other nasal diseases.

All observers are agreed that this condition, while mild in the child having the disease, is capable of producing the most virulent character of diphtheria in others. Ravel says: "In a great majority of cases, if not in all, I should urge that all cases of fibrous rhinitis should be considered diphtheria until the contrary has been proven by cultural methods." Morse, of Harvard, quoted by Hubbard, says: "Every nasal discharge in an infant is suspicious, especially if it is irritating. In spite of the greatest care upon the admission of cases, it was found impossible to avoid epidemics of diphtheria in the hospital from this cause until routine immunization was adopted, 500 units being given upon admission and repeated in three weeks afterward. Since this treatment was begun, six years ago, only one case of pharyngeal diphtheria has developed in the hospital, although many unimmunized nurses and nursery maids have gone down with it, and many have been discovered."

These views of the virulency of the bacilli in such cases do not accord with the reasoning of Cooley, of Detroit, also quoted by Hubbard, who

states that the presence of a copious discharge acts as an inhibitory influence on the growth of bacilli, and thus affects the virulency. His conclusions as to the virulency presented by others make it appear more probable that the bacilli, having found a habitat upon an individual of high resisting power, grow slowly, and thus immunize their host.

In conclusion, it would seem that the textbooks which devote much space to diphtheria, and those on the subject of public health, should lay emphasis upon the existence of this condition which in all probability is the cause of many of the epidemics that have been observed.

Since writing the above three more of these cases have been seen by me.

One was in every way similar to those whose histories have been given; the second was similar with the exception that the nasal discharge was blood-stained with a blood crust around the margin of the nares. The third case differed from any of the above, in that the diphtheritic condition in the nose was chronic and lasted about six weeks, during which time the child had several attacks of follicular tonsillitis, which, in my opinion, were due to the mouth breathing and lowered resistance. Bacteriological examination of the throat during one of the attacks showed the absence of the bacillus of diphtheria which was present in the nasal discharge.

The diagnosis in all of these cases was confirmed by bacteriological examination. All of them occurred in private practice. The circumstances surrounding the patients were good.

It is my opinion that the examination of all dispensary cases presenting a long continued nasal discharge would bring to light many more such cases, and it seems probable that many of our epidemics of diphtheria would be prevented by such care.

BIBLIOGRAPHY.

1. P. A. Harry—*The Hospital*, London, 1910, XLVIII, 413.
2. M. Tezenas—*La Loire Medical*, 1908, XXVII, 200.
3. Melot—*Annals Malades de L'Oreil et du Larynx*, Paris, 1903, XXIX, 70.
4. R. Glatard—*These*, Paris, 1902.
5. E. Mensi and A. Rondell—*Gaz. Med. di Torino*, 1897, XLVIII, 501.
6. L. Concetti—*Arch. Ital. di Pediatr.*, 1892, X, 21.
7. T. Hubbard—*Annals Otology, Rhinology and Laryngology*, 1908, XVII, 172.
8. P. W. Williams—*Jour. of Laryngology*, London, 1910, XXV, 2.
9. Gennaro Gallo—*La Pediatria*, Napoli, 1908, XVI, 188.
10. F. Fede—Ibidem, 1907, XV, 292.
11. L. Concetti—*Bulletino della reale Aced. Med. di Roma*, 1891-1892, XVIII, 267.
12. Wilhelm Anton—*Klin. Vortrage aus d Gebiate d Otologie u Pharyngo-Rhinol.*, Ed. 11, 1898, 31.
13. Demme—*Jahrb. f. Kinderheilkunde*, Ed. 1, 1868, 11.
14. Mackenzie—*Krankheiten des Hakes u der Nase*, 1880, 1, 185.
15. Morf—*Correspondenzblatt f. Schweizer Aerzte*, 1899, XXIX, 645.
16. Freisner—*N. Y. Med. Jour.*, 1907, LXXXV, 889.
17. Dupuy—*New Orleans Med. and Surg. Jour.*, 1905-06, LVIII, 573.
18. Monti—*Kinderheilkunde*, 11, 1901, 247.
19. Synes—*British Med. Jour.*, 1903, 1, 485.
20. Loeffler—*Klinisches Jahrbuch*, XIX, 497.
21. Massei—*Arch. Ital. di Laryngologia*, 1904, XXIV, 45.
22. Golescano—*Arch. Intemat. de Laryngol. d'Otol. et se Rhinol.*, 1907, XXIV, 194.
23. Gerber & Podack—*Deutsches Archiv. f. Kilm. Med.*, 1894-95, LIV.
24. Abbott—*Med. News*, 1893, May 13.
25. Treitel & Koppel—*Archiv. f. Kinderheilkunde*, 1896, XIX, 107.
26. Grunwald—*Munch. Med. Wochenschr.*, 1903, LIII (2), 1358.
27. DeBlois—*N. Y. Med. Jour.*, 1883, 121.
28. Orr—*Glasgow Med. Jour.*, 1868-69, 125.
29. Scheppegrell—*Jour. A. M. A.*, 1904, XLII (1), 437.
30. Hunt—*British Med. Jour.*, 1898, 249.
31. Ellatt—*Memphis Lancet*, 1897, 225.
32. Townsend—*Boston Med. and Surg. Jour.*, 1898, 427.
- Thomson—*Polyclinic*, 1899-1900, 253.
33. Fasuelle—*Theses de Paris*, 1906, 201, 28.
34. Wilmer—*N. Y. Med. Jour.*, 1904, 881, 927, 969.
35. Davies—*British Med. Jour.*, 1903, 1, 367.
36. Mackenzie—Ibidem, p. 811.
37. Vlldai—*Ungarishe Med. Presse*, 1905, 331.
38. Ravenel—*Med. News*, 1895, 537, 574.

217 East Grace Street.

Proceedings of Societies, Etc.

NORFOLK COUNTY MEDICAL SOCIETY—SURGICAL SECTION.

Reported by FRANK H. HANCOCK, M. D.

At the March, 1912, meeting of the Surgical Section of this Society, Dr. Jas. W. Hunter delivered a short address on

The Life of Lord Lister.

Dr. Hunter said that we should have no regret that Lord Lister is dead. His work was done years ago; he had lived a long time, and he was very lonely. He suffered, too, from those infirmities of mind and body that seem so inscrutable, coming at the end of a long, pure and splendid life.

The last few months, really the last few years,

were marked by great enfeeblement; there being no resistance to overcome, a few hours of pneumonia put him quickly and quietly to sleep forever. Doubtless he was met "at the top of the nearest hill" by the immortals of his profession of other days, and it must have been Mr. Wm. Clowes, the great English surgeon of the sixteenth century, "who came down the hill to meet him" to be the "first to welcome him"; the man who said that the infection following gun-shot wounds in the wars he saw were due to "*something else than poisoned bullets*"—an incredulity that led to the study of the subject by some of his immediate successors, who came to the conclusion that the "*something else*" were "little animals or plants" which got into the wounds.

This premature conception of the germ theory cost these surgeons the support and respect of their neighbors, was responsible for their practical excommunication, and nearly cost them their lives. To their everlasting credit they declined to renounce their theory of the "little animals" though they were warned that these dangerous tenets were without warrant and support of either the law or the gospel.

Thus great truths have always required, before their final acceptance in all the struggles of this race, the happiness and lives of the fore-runners and precursors, who announced them to an unbelieving and suspicious world.

These men must not be forgotten, nor those other scientists who sacrificed so much, all that they had, to establish upon this planet the verity of the things they knew to be true—Galileo, Erasmus, Spinoza, Michael Servetus; the French Judge who, declining to further commit people for witchcraft, underwent immediate torture in consequence, through an enraged public opinion that said "away with this heretic"; Avenbrugger, Laennec, Grotius, Linares, Richard Bright, Andreas Vesalius, Harvey, and Ambrose Pare. This long line of magnificent men, possessed of deathless courage, preceded the wonder-workers, Pasteur and Lister, preparing for them the way, pointing to the truth, however darkly. And now the world no longer gazes sadly on the origin of unknown evils, without capacity to raise a finger in defense. It strikes with deadly accuracy the cause of hospital gangrene, and it is not now

necessary to burn surgical hospitals in order to get rid of infections.

To Pasteur and Lister is this directly due—men who had the intuitive genius to see the whole truth, to seize it, to demonstrate it infallibly, to force it into the consciousnesses, the hearts and sinews, of all men, until it had become a part of life itself.

We hardly realize in this day what a dreadful scourge "hospital gangrene" became after the introduction of anæsthetics, when people began to come in great numbers to surgeons hopeful of relief now that the operations were rendered painless. They became the victims of unexpected ills, and died in great numbers. Surgical wards became veritable pest houses, and the proposition to burn them was received with great favor, because apparently everybody who went into one would certainly be seized with this insatiable gangrene and destroyed. The idea was to build temporary hospitals for the surgeons, so that when gangrene developed the hospitals could be destroyed without great loss of property, and before there was great loss of life.

These were the conditions Lister found when he was appointed one of the Surgeons of the Glasgow Royal Infirmary in 1861.

In 1867 he published a series of articles on the "Antiseptic System of Surgery." In these articles he described how the opening was to be made, and carbolic acid applied to the interior of the wounds to destroy the air borne germs of putrefaction; the opening was then covered with lint, charred with carbolic acid, and protected from the contaminating air by an external layer of sheet metal.

In opening an abscess Lister took a piece of rag from four to six inches square, soaked it in a solution of one part of carbolic acid to four parts of boiled linseed oil, and laid it carefully over the site of the proposed incision. Now lifting one edge of this rag he plunged in the knife, previously dipped in the oil, and hastily withdrawing it, dropped the "Antiseptic Curtain" beneath which the pus flowed out. Subsequently a carbolized putty was smeared over the wound. Now the interesting fact followed that immediately hospital gangrene, pyemia, and erysipelas disappeared from *Lister's wards and only from his wards*.

In the latter part of the same year a few Scotch surgeons began this practice. In 1868

Lister relieved the dressing of some of its cumbersomeness by substituting carbolized shellac for carbolized putty.

About this time Lister became interested in the question of absorbable ligatures or ligatures that might be permanently buried in the tissues without giving rise to suppuration. It was not until 1881 that the cat-gut ligature assumed its final form at his hands, though at that time two months were required to prepare it. It was during this year that he chromicized cat-gut for the first time. These experiments were most interesting, furnishing excellent examples of the inquisitiveness of his mind and his ability to obtain results.

In 1869 he became Professor of Surgery in Edinburgh, and shortly after assuming those duties he devised the apparatus which could deliver a jet of carbolic spray all over the room. Whenever dressings were changed or removed this thing was set realistically to work until a fog was produced, as is well remembered by those whose mucous membranes came in contact with this germ-destroying moisture.

After having been in charge of 50 beds for nine months at the Edinburgh Royal Infirmary, not a case of infection had developed. These facts were too marvelous to longer escape universal attention, and the antiseptic treatment began to spread over the civilized world.

In 1875 he made a memorable trip to Germany where he was given an enthusiastic reception, most men of science now realizing that the greatest era the art of healing had ever known was in process of dawning.

In 1877 Lister was appointed Professor of Clinical Surgery in King's College Hospital, London. He accepted the appointment, but stipulated for, and obtained, separate wards, house surgeons, dressers, and nurses. The results justified his precautions; there were no infected wounds in his wards, nor in other wards where his methods were used.

In 1881 he published his first direct reference to pathogenic bacteria as a distinct class of micro-organisms.

In 1883 he received the honor of a baronetcy. The following year he wrote of his experiments with bichloride of mercury as an antiseptic, with the double salt of bichloride of mercury, and chloride of ammonium, which he called by its mediæval name of sal-alembroth. Later he tried the biniodide of mercury, and after that

he obtained a precipitate by mixing solutions of cyanide of mercury, cyanide of potassium, and the sulphate of zinc, which he found to have a remarkable inhibitive power over the growth of bacteria.

In 1887 he abandoned the use of the carbolic spray, stating that corrosive sublimate was more efficient and less irritating. Up to the last, however, he used either carbolic acid or bichloride as the circumstances seemed to him to warrant.

In 1897 he was elevated to the peerage, an honor conferred by Queen Victoria. Various other honors came to him in the years of his retirement—to a man who had worked so long and achieved so much in the years of his service. He lived to see his work made well-nigh perfect, to know of a surety that "mythical fungi" were pathogenic bacteria and must be kept from the neighborhood of wounds, dressings, nurses and surgeons.

Dr. Livius Lankford gave some personal reminiscences of Lord Lister. In the eighties he spent several months in London, going every Tuesday and Thursday to see Lord Lister operate at the King's College Hospital. He was then using the carbolic spray, which was worked with a remarkable looking instrument having a bellows attachment with power enough to drive the mixture well into the surrounding atmosphere, sometimes creating a fog so dense that the operators were almost lost to view. However, he was beginning then to use the other antiseptics mentioned by Dr. Hunter. Certainly it was a wonderful thing to see the start of this fight against germs, and a wonderful thing to contemplate how step by step Lister gradually approached the final phase—asepsis.

Dr. Lankford said Lister had been a teacher of surgery only about ten years when he began the use of antiseptic dressings. In the lecture-room his delivery was very pleasing, his enunciation clear and deliberate, betokening his well-balanced judgment. He had a contemplative, placid, serious expression, with very little of that look which Pasteur had of vehemence and passion. His face was often sad, thoughtful, gentle, like his voice and his soul; he was not given to anger, and very little to controversy.

Vigorously attacked by Lawson Tait, Sir Jas. Y. Simpson, or as the Englishmen called him, "Chloroform Simpson," and Sir Wm. S. Savoy, the most eloquent surgeon of his day,

Lister went calmly on with his work, unflinchingly and untiringly, through sneers and contumely, as though he were not aware of their existence; an indifference that in itself must have been galling to his adversaries. Lister really knew that he was to establish these truths; and he was fully determined to complete his work, to open all the great cavities of the human body to the healing hand of the surgeon, Lawson Tait, Simpson and other great surgeons who sought to deter him, being of little consequence beside his set purpose. He believed in the teaching of the Hebrew preacher who said, "Let the counsel of thine own heart stand." His strict rectitude was one of his great characteristics, and so his "eye being single, his whole body was full of light."

Dr. Kirkland Ruffin recalled vividly how this question of antiseptics was agitating the profession in the eighties when he was studying at the University of Virginia, and later, in New York, where he spent several post-graduate years. He said that *Dr. Jas. L. Cabell*, then Professor of Surgery at the University, taught them all that was known or could be found out about antiseptics at that time; that this great leader recognized the value of these ideas, as distinguished from many of the great surgeons of the world who were skeptical a long time, requiring like *St. Paul* a sign from heaven to convince them. *Dr. Ruffin* said the din of that conflict was terrific, especially caustic and bitter was *Lawson Tait* who snarled and growled at this growing cult up to his very death. As late as 1890 *Tait* said, "It is, therefore, to me conclusively proved that our improved results in abdominal surgery do not depend on *Mr. Lister's* principles at any rate, principles that are altogether false." This was a great pity that, with many brilliant qualifications, he should have had such unlucky limitations. He really used a strict asepsis himself, and was so deft and rapid that his results were astonishing. As a matter of fact, *Lawson Tait* was the best abdominal surgeon of his day.

Simpson took some wicked flings at *Lister*, trying to discredit him in any way that he could. Having conferred such a boon upon humanity himself, he might have welcomed a supplemental aid, but it was too much for him to sit quietly by and watch the rising of another star.

It was of little use to prove what was generally

admitted, that *Lister* was not the first surgeon to use carbolic acid. It was known that *Maisonneuve*, and *Lemaire*, of Paris, and *Kuchenmeister*, of Dresden, and some others had made use of carbolic acid, and had some crude antiseptic ideas about it. *Lister's* genius, however, it was that enabled him to perceive in *Pasteur's* discovery the cause of putrefaction, together with what *Tyndall* had shown from his physical laboratory that life was the gift inevitably of a preceding organism, that in these things lay the secret causes of wound infection which were defeating always the best skill of the surgeon. To the solution of this he applied himself as assiduously as *Melancthon*, and he left it a completed work.

What an everlasting relief it is to read in the history of this acidulous controversy that *Pasteur* and *Lister* vied with each other in extolling the share taken by his fellow in the production of the total result, that between these two at least there was no controversial question of originality.

Dr. Ruffin said in conclusion that it was amusing to remember how enormous and cumbersome were the dressings of those days, layer on layer of carbolic and bichloride soaked gauze dressings that cost sometimes as much as ten dollars a dressing.

Dr. R. L. Payne, Sr., remembered the early days of the antiseptic treatment, and something of the incredulity that then existed; how it was slyly regarded as presumptuous, if not impious, to say of diseases that they were germ-borne—probably a remnant of an old belief which feelingly ascribed contagions to Divine causes.

Samuel D. Gross was Professor of Surgery when *Dr. Payne* studied medicine at the *Jefferson Medical College*. He taught the germ theory, but apparently under a hint from the faculty, because the old fellow really never believed in it. He thought *Listerism* was just one of the fads with which medicine from time to time regaled itself, and that then it would, as he had seen many another do, pass on into *lethe*.

Dr. Payne said that no man who had spent most of his life in the pre-antiseptic days could take in fully the significance of asepsis. There were simply no receptors in his mind to accommodate such alien ideas.

In civil hospitals as well as in general and private practice the mortality from "blood

poisoning" was frightful, causing more deaths in military hospitals than ever died from wounds on the battlefield; there were epidemics and epidemics of puerperal fever over wide areas of territory, causing the death of almost every lying-in woman. Operations of every sort were performed with great risk, and only under the most exacting circumstances would a surgeon open the abdomen or a joint. How surgeons must have yearned through the centuries for the conditions brought about by Lister's masterly researches, researches based upon the work done by Tyndall, Pasteur and Koch, preceded in their turn as they were, by the splendid work of Schoenlein who discovered the fungus of favus in 1839, of Vogel who saw and described *oidium albicans* in 1840, and of Goodsir, discoverer of *sarcina ventriculi* in 1841, and lastly Davaine who named the anthrax bacillus in 1850.

Dr. Payne said the safest place to do surgery when he was a young man at school was "under the old apple tree"; that there his father arranged to do his surgical operations, consciously or unconsciously for the purpose of getting away from contamination. Dr. Payne recalled a certain morning that he dressed a man's foot that had been cut by an ax, for his father, and that after taking a few stitches the needle becoming unthreaded, he promptly passed the thread through his mouth and, after moistening it carefully, succeeded in rethreading the needle, and finishing the job. This performance was immediately applauded by his father and a neighboring doctor who was present, both regarding it as a mark of great surgical prescience, and a rainbow sign of resourcefulness in emergency.

These recollections of English and American surgeons reminded *Dr. Ludwig Mendelsohn* of some of the German surgeons he had seen, and of whom he had heard in Germany, during the early nineties, when he was a student in Berlin.

Dr. Mendelsohn said that the German surgeons early adopted the "antiseptic treatment"; that after the Scotch and English, they were the first surgeons in the world to really appreciate the value of these new ideas, and to employ them. This is shown by the reception given Lister on his visit to the German clinics in 1875, where he found every effort being made to put into practice the Listerian doctrines, the evidence of which so pleased the English master.

As a matter of fact, the opposition to Lister

was largely confined to his own country, the great German teachers accepting his methods with an avidity that was prompt and complete.

Prof. E. von Bergman was not the mild-mannered man Lister was. He was aggressive, assertive, peremptory, and often given to expressing himself in forceful language. Von Bergman's delivery was sharp, incisive, delivered in a series of staccato sentences, but his cleverness in operating was something wonderful to see; a man of remarkable mental fertility, and of the most diverse gifts; he was really one of Prussia's great gifts to mankind.

Olshausen had more of the Lister temperament, with a great deal of kindness and tenderness in his make-up. He was a gentle Teuton.

Mikulicz, of Breslau, so recently dead, would require a history of his own. Wm. J. Mayo said of him not long ago that he was "the greatest surgeon of his day."

EXHIBITION OF SPECIMENS AND CASES.

Dr. Chas. J. Andrews exhibited a large tuberculous kidney which he had removed about a month before. The kidney was a solid mass of tuberculous material, and was so large that it was considered advisable to remove it through the abdomen, which was done, along with three or four inches of the ureter. Lillianthal advises removal of the entire ureter, but the Mayos do not consider such a procedure necessary.

The woman had a history of pain in the upper right quadrant for months with occasional chills and fever, and very cloudy urine. The kidney was palpable as a mass in the right side. The cystoscope showed the urine was of unilateral cloudiness, coming from the orifice of the right ureter, and containing tubercle bacilli. Her general health is much improved now, and her urine is clear.

Dr. Andrews next showed a man for whom he had resected a rib to let out an empyema that really originated in the liver. The man had typhoid of three to five weeks duration during the past Fall, and at that time suffered with marked pain in the right hypochondrium. A month or two after recovering from that attack this very acute pain returned over the upper border of the liver, and, finally, having reached the pus stage, a resection was done and the abscess drained. A Widal made at the time of this operation was positive.

The case is of interest as showing the liabil-

ity to hepatic or gall-bladder infection following typhoid, apparently from foci of these bacilli left in the hepatic tissue after the fever was over.

Dr. Chas. W. Doughtie presented a young man of 19 who came to him in September, 1911, with a very small nodule on the right superior maxilla. It looked suspicious, but the patient's family decided to await developments. It grew rapidly and early in February, 1912, when the boy returned, it had become a hard, bone-like tumor as large as a walnut, occupying the right superior maxillary bone, and extending into the right nostril. It was a globular tumor. Ether was administered through the left nostril by catheter; the external carotid artery was ligated, and the superior maxilla with its tumor extirpated.

The deformity now, a month later, was remarkably slight, the only defect being some difficulty of enunciation, which Dr. Doughtie hoped to correct by means of a plate.

Dr. Doughtie next showed a man who had been operated upon for an acute appendix a year ago. On February 5, 1912, he was seized with acute abdominal pain of a paroxysmal nature, nausea, and vomiting. In the course of two days some blood appeared in the stools and the vomiting became stercoraceous. He was seen on the morning of the 8th by Dr. Doughtie, and immediately put upon the table. An elongated mass was plainly to be made out in the right side of the abdomen, and a diagnosis of intussusception was made. The abdomen was opened and the intussusception was found to be of the ileo-colic variety, the intussusceptum reaching to the hepatic flexure. It was easily reduced after the manner of Ochsner. The bowel was dark and dangerous looking, and was watched for some time, hot towels being applied. The color returning, the abdomen was closed with a slight drainage. Recovery was uneventful.

Section adjourned.

Analyses, Selections, Etc.

A Simple Diet Card and Its Use.

White in the *Boston Medical and Surgical Journal* of October 12, 1911, advises the use of a diet card on the following basis:

In fevers and other conditions where a liquid

diet is largely used, a knowledge of food value is very important. There is great difference in the food value of different liquids. The table gives the following:

One glass of milk equals 160 calories.

One glass of 3-4 milk and 1-4 (4 tablespoons) 20-per-cent. cream equals 240 calories.

An egg-nog (1 glass milk, 1 egg, 2 teaspoons sugar) equals approximately 300 calories.

A plate of cream soup equals 160 calories.

A glass of skimmed milk or buttermilk equals 80 calories.

An equal amount of gruel equals 75 calories.

A glass of albumin water (white of 1 egg) equals 20 calories.

A cup of beef tea or clear soup equals 5-20 calories.

Let us take a 150 pound patient in bed who needs, approximately, 1800 calories a day and who receives ten feedings of a glass (8 ounces) of liquids a day. Some combinations of liquids allowing for agreeable variety will abundantly nourish him, other combinations mean partial starvation. Two glasses each of milk (320), gruel (150), thickened soup (320), egg-nog (600), milk and cream mixture (480); total, 1870 calories.

Two glasses each of milk (320), buttermilk (160), gruel (150), albumin water (40), and beef tea (20); total, 690 calories.

A diet like the last, or only one-half or one-third as large, is often given to invalids and the loss of weight attributed to "wasting disease."

It is well to look over the fever diet and see if it is sufficient. The card helps us to do this easily.

It is easy to increase the food value of a liquid food. Take a glass of milk, 160 calories—each addition of a tablespoon of cream (20 per cent.) gives 30 more calories; each addition of a teaspoon of sugar (preferably milk-sugar) 33 more calories; an addition of an egg gives 70 more calories.

The great value of soft solids in fever is easily seen. One tablespoon (1-2 ounce) milk equals 10 calories, a heaping tablespoon of cooked cereal equals 35 calories, of custard 55 calories, and of ice cream 135 calories.

Coleman has recently shown how it is possible to give typhoid patients 4000 to 5000 calories a day on a diet of milk, cream, milk-sugar, and eggs, without disturbing digestion.

and to carry them through their fever with little loss of weight.

To treat diabetes properly, we must know the amount of carbohydrate eaten as well as the amount in the urine—so many grammes eaten, so many grammes passed. We must be able to reduce the amount of carbohydrate eaten regularly and systematically to get the patient's urine sugar-free, and later to increase the amount of carbohydrate definitely and cautiously up to the limit of "tolerance."

Slipshod dieting is responsible for the majority of poor results in the treatment of diabetes. The use of the diet card will help to prevent this. The chief articles containing very little or no carbohydrate are easily seen, such as meat, fish, eggs, cheese, butter, olive oil, clear soups, olives. Add to this tea and coffee and the green or "fodder" vegetables (which are not charted because of their small food value, but are useful for flavor and variety, and as carriers of butter, cream, and olive oil), and we have the "strict diet" which every diabetic takes and takes freely.

In contrast to this we have the carbohydrate food, which must be carefully watched and definitely controlled and varied in amount to suit the individual case. We can quickly estimate the amount of carbohydrate a diabetic is taking at the beginning of treatment if he will give us a simple record of the amount of food eaten at his meals. If, in addition to meat, fish, eggs, clear soups, fats and greens, he takes for example, 1 orange (15), 6 tablespoons oatmeal (6x7), 6 slices bread (6x13), 4 tablespoons cream (4x1-2), 6 teaspoons sugar (6x8), 2 medium potatoes (2x20), 3 tablespoons peas (3x5), 2 slices sponge-cake (2x13), we have a total of approximately 318 grammes of carbohydrate.

If we wish to give our diabetic approximately 100 grammes of carbohydrate, we may order the "strict diet" plus 1-2 orange (1-2x15), 3 tablespoons oatmeal (3x7), 3 slices bread (3x13), 1 1-2 potatoes (1 1-2x20), and 5 tablespoons of cream (5x1-2).

If we wish 20 grammes of carbohydrate, we may give "strict diet" plus 1-2 glass milk (1-2x12) and two tablespoons oatmeal (2x7).

If we wish 10 grammes of carbohydrate, we may add 10 tablespoons cream (10x1-2) and 1-2 grape fruit (5) to the "strict diet."

"Strict diets" may prove scanty nourishment

unless some advice is given about amount. It is often wise to be sure of 1000 calories by advising the patient to eat each day at least 3 eggs (3x75), 8 teaspoons olive oil (8x37), and 6 pats (2 ounces) of butter (6x80). The diet card is an easy means of arranging diabetic diets.

It is almost as necessary to watch the amount of proteid eaten in nephritis as the amount of carbohydrate in diabetes. Many cases improve surprisingly on it. Many a doctor would like to plan a low proteid diet, but does not know how, and contents himself with "not much meat and plenty of milk," with the result that more proteid than ever is eaten. The diet card makes it easy to plan a diet containing 50 or 60 or 70 grammes of proteid or any other desired amount. In acute nephritis, we may give approximately 50 grammes of proteid as follows: 4 glasses of milk (4x7.5), 1 glass (16 tablespoonfuls) cream (16x1-2), 2 plates of thickened soups (2x5.5), 11 teaspoons milk-sugar. This bill of fare gives approximately 1800 calories and between 1 1-2 and 2 quarts of liquids.

Later, we may give approximately 65 grammes of proteid as follows: 6 glasses of milk (6x7.5), 1 1-2 glasses (24 tablespoons) of cream (24x1-2), 3 tablespoons of rice (3x1), 2 slices of toast (2x2.3), 6 pats of butter and 4 teaspoons of sugar. This gives approximately 2500 calories and 2 quarts of liquids.

In a chronic case, we may give 70 grammes of proteid as follows: 4 slices of bread (4x2.3), 2 eggs (2x6.5), 2 slices of meat (2x11.5), 2 glasses of milk (2x7.5). This adds up to 60 grammes of proteid. We would fill out the bill of fare with butter, cream, sugar, flour soups, starchy vegetables, greens, olive oil, etc. A plate of flour soup (5.5) and 5 tablespoons rice, mashed potato or corn (5x1) would give approximately another 10 grammes of proteid. Total, 70 grammes.

We must remember to give enough food for body needs in all chronic cases, to make up with fats and carbohydrates for the proteid we have cut out. A pleasant variety of food makes this much easier for the patient. Foods with a low per cent. of proteid and high food value are especially useful, such as cream, cake, mashed potato, rice, etc. It is not necessary to plan every dish the patient eats and estimate its caloric value. It is much simpler and

just as satisfactory to prescribe the proteids definitely and decide whether the needed fats and carbohydrates are taken by weighing the patient now and then and judging his strength and general condition.

It goes without saying that we must consider many other features of the food in nephritis besides proteids and food value, such as the amount of water, salt and irritant substances.

The diet card helps us to apply the well-known principles in the treatment of obesity—namely, to give a diet which has less food value than the one habitually used, but with bulk enough to satisfy, and variety enough to be pleasant. It enables us to compare the different kinds of soups, fish, meats, vegetables, fruits and desserts, and to choose those of lower food value.

Compare a cup of clear soup (10 calories) with a plate of thickened soup (160 calories), a heaping teaspoonful of cod (35 calories) with an equal amount of salmon (105 calories), a slice of lean meat (70 calories) with a slice of fat meat (200 calories). Compare green vegetables, such as lettuce, spinach, tomatoes, celery, cucumbers, etc., which have a food value so low that they have not been charted (about 100 calories per pound, most of which cannot be used by the body), with starchy vegetables like potato, rice, corn and peas (35 to 40 calories per tablespoon). Compare an apple or pear (75 calories) with a saucer of figs or dates (350 calories). Compare an orange (70 calories) taken for dessert with 4 tablespoons of ice cream (540 calories).

We can see the need of limiting the amount of foods which have a high value in small bulk, such as bread and butter, olive oil, cream, sugar, cereals and cheese, while weak foods, such as oysters, beef tea, greens, etc., need no restriction.

Summary.—The object of White's paper is to emphasize the importance of the amount of food as well as kind, and to help make the dose of food as easy to understand as the dose of medicine. The principles of nutrition are better known than the way to apply them. Our use of foods has been much less accurate than our use of drugs, and dietary mistakes have been common through ignorance of food values or difficulty in estimating them. A large part of the difficulty for the busy doctor has been the amount of work needed to estimate the fuel

value of a day's food or the amount of carbohydrate, proteid, or fat in it. The method of doing this must be simple to be freely used.

This simple diet card has been offered as aid in applying our knowledge of the principles of nutrition in our daily use of foods. Its chief value is its convenience. Extreme accuracy is not possible or necessary, and the author's aim has been simplicity rather than completeness. Its object is to avoid weighing of food and tedious calculations by giving food-values in household measures.

By its use, we can readily plan or estimate the value of any simple diet or control the amount of some one food material, such as the carbohydrates in diabetes or the proteids in nephritis.

It helps to overcome the old excuse that food-values are hard to get at, and its greatest value is in educating the doctor in the value of foods he has ordered and as an introduction to more accurate dietetics.—(*Therapeutic Gazette*, February, 1912.)

(See Table on Next Page.)

Some Extrapulmonary Sounds Which Simulate Râles.

George E. Bushnell, U. S. A., states that the study of sounds that simulate râles is of especial interest in examinations for pulmonary tuberculosis. There are sounds produced by the contraction of the trapezius, pectoral, and intercostal muscles. There are marginal sounds of crepitations heard over the base of the lungs during inspiration, which sounds are not associated with other signs of disease. They simulate friction sounds and crepitant râles. The author believes that they are due to the separation of the costal and diaphragmatic pleural layers during respiration. They are purely physiological and are found in a considerable number of perfectly healthy persons. Originating in the sternal articulations with the ribs, there are sounds which are most noticeable in the chests of athletes, and which consist of showers of fine crackles and clicks caused by the motion of the articulations. Another class of sounds is caused by the pressure of the stethoscope on fat or muscular tissues.—(*Medical Record*, January 20, 1912.)

FOOD VALUES IN HOUSEHOLD MEASURES.

| FOODS AS EATEN | Actual Amount | Household Measure | Calories | Approximate | | |
|---|---------------|------------------------|----------|-------------|------|-------------------|
| | | | | Grammes | | |
| | | | | Proteid | Fat | Carbo- hydrate |
| Dairy. | | | | | | |
| Milk | 8 ozs. | A glass. | 160 | 7.5 | 9.5 | 12. |
| Skimmed milk and buttermilk.... | 8 ozs. | A glass. | 80 | 7.5 | 1. | 11.5 |
| Cream { thin (20 per cent)..... | 16 grms. | A tablespoon. | 130 | .5 | 3. | .5 |
| { thick (40 per cent)..... | | A tablespoon. | 160 | .5 | 6. | .5 |
| Condensed milk sweetened..... | 20 grms. | A heaping teaspoon. | 70 | 2. | 2. | 11.5 |
| unsweetened..... | 20 grms. | A heaping teaspoon. | 35 | 2. | 2. | 2.5 |
| Butter | 10 grms. | A pat or ball. | 80 | | 8.5 | |
| Cheese { Cream..... | 15 grms. | One-inch cube. | 65 | 4. | 5. | .5 |
| { Skim-milk..... | | One-inch cube. | 45 | 4.5 | 2.5 | .5 |
| { American..... | | One-inch cube. | 70 | 4. | 5.5 | |
| Eggs, whole | 50 grms. | One. | 75 | 6.5 | 5. | |
| Eggs, yolk | 15 grms. | One. | 55 | 2.5 | 5. | |
| Meat and Fish (cooked). | | | | | | |
| Beef tea, clear soups | 5 ozs. | A teacup. | 5-20 | 1.-4.5 | | .5 |
| Fish { lean (cod, flounder)..... | 50 grms. | A heaping tablespoon | 35 | 8.5 | | |
| { fat (shad, salmon)..... | | A heaping tablespoon | 105 | 11. | 6.5 | |
| Meat { lean..... | 50 grms. | A medium slice. | 70 | 11.5 | 2.5 | |
| { medium fat..... | | 5x3x¼ inch. | 150 | 11.5 | 9. | |
| Oysters, medium size (raw)..... | 16 grms. | One. | 200 | 8.5 | 18. | .5 |
| Cereals and Vegetables (cooked). | | | | | | |
| Bread, white or Graham..... | 25 grms. | One slice, 4x4x½ inch. | 70 | 2.3 | .5 | 13. |
| Vienna roll | 40 grms. | One. | 115 | 3.5 | 1. | 22.5 |
| Crackers (Uneeda) | 7 grms. | One. | 30 | .5 | .5 | 5. |
| Cereals, cooked, moist | 40 grms. | A heaping tablespoon | 35 | 1. | | 7. |
| Cereals, eaten dry | 5 grms. | A heaping tablespoon. | 20 | .3 | | 4. |
| Shredded wheat | 30 grms. | One. | 110 | 3. | .5 | 23. |
| Gruels (cereal) | 8 ozs. | A soup plate. | 75 | 2.5 | 1. | 14. |
| Thickened or cream soups..... | 8 ozs. | A soup plate. | 160 | 5.5 | 4.5 | 24. |
| Macaroni | 25 grms. | A heaping tablespoon. | 25 | 1. | .5 | 4. |
| Potato, boiled or baked..... | 95 grms. | One medium. | 90 | 2. | | 20. |
| Potato, mashed | 35 grms. | A heaping tablespoon. | 40 | 1. | 1. | 6. |
| Rice, boiled | 30 grms. | A heaping tablespoon | 35 | 1. | | 7. |
| Corn, canned | 35 grms. | A heaping tablespoon. | 35 | 1. | .5 | 6.5 |
| Peas, fresh | 35 grms. | A heaping tablespoon. | 40 | 2.5 | 1. | 5. |
| Lima beans, canned | 25 grms. | A heaping tablespoon. | 20 | 1. | | 3.5 |
| Squash | 35 grms. | A heaping tablespoon | 20 | .5 | | 3.5 |
| Fruits. | | | | | | |
| Apple, pear | 120 grms. | One medium size. | 75 | .5 | .5 | 17. |
| Apple sauce | 45 grms. | A heaping tablespoon | 70 | | .5 | 16.5 |
| Banana | 100 grms. | One medium size. | 100 | 1.5 | .5 | 22. |
| Orange | 130 grms. | One medium size. | 70 | 1. | | 15. |
| Strawberries | 100 grms. | A medium saucerful. | 40 | 1. | .5 | 7.5 |
| Dried figs, dates, raisins..... | 100 grms. | A medium saucerful. | 350 | 2.5 | 3. | 76. |
| Fruit jelly, sweetened | 50 grms. | A heaping tablespoon. | 160 | .5 | | |
| Desserts. | | | | | | |
| Custard | 40 grms. | A heaping tablespoon. | 55 | 2.5 | .5 | 9. |
| Ice cream | 40 grms. | A heaping tablespoon. | 135 | 1.5 | 9. | 11. |
| Sponge cake | 20 grms. | A slice 2x4x½ inch. | 75 | 1.5 | 2. | 13. |
| Pudding (rice, tapioca, bread).... | 45 grms. | A heaping tablespoon | 80 | 2. | 2. | 13. |
| Alcohol | 12 grms. | A tablespoon. | 85 | | | |
| Whisky, brandy, etc. (50 per cent.) | 1 oz. | A small wineglass. | 85 | | | |
| Wines (8-25 per cent.)..... | 1 oz. | A small wineglass. | 15-50 | | | |
| Miscellaneous. | | | | | | |
| Sugar | 8 grms. | A heaping teaspoon. | 33 | | | 8. |
| Honey | 10 grms. | A heaping teaspoon. | 33 | | | 8. |
| Olive oil | 4 grms. | A teaspoon. | 37 | | 4. | |
| Olives | 7 grms. | One medium size. | 15 | | 1.5 | .5 |
| Almonds, shelled | 25 grms. | A heaping tablespoon. | 165 | 5. | 13.5 | 4.5 |
| Cocoa powders | 10 grms. | A heaping teaspoon. | 50 | 2. | 3. | 3.5 |

DAILY FOOD DEMANDS

| ADULT | Body Weight | Calories per pound | Total Calories | Total Grammes proteid |
|---------------------------|-------------|--------------------|----------------|-----------------------|
| At rest in bed..... | 150 lbs. | 12 | 1800 | 72 |
| Slight activity | 150 lbs. | 15 | 2200 | 88 |
| Light work | 150 lbs. | 17 | 2600 | 115 |
| Moderately hard work..... | 150 lbs. | 20 | 3000 | 120 |
| Very hard work | 150 lbs. | 23-30 | 3500-4500 | 140-180 |
| CHILD | | | | |
| Age 0-6 months | 7-15 lbs. | 42-40 | 300-600 | 1 gramme per lb. |
| 6-12 months | 15-20 lbs. | 40 | 600-800 | 35-40 |
| 2 years | 25 lbs. | 36 | 900 | 42 |
| 4 years | 35 lbs. | 34 | 1200 | 55 |
| 8 years | 50 lbs. | 28 | 1400 | 60 |
| 12 years | 75 lbs. | 22 | 1600 | 75 |

1 gramme proteid = 4.1 calories.
 1 gramme carbohydrates = 4.1 calories.
 1 gramme fat = 9.3 calories.
 1 gramme alcohol = 7.0 calories.

Book Notices.

Hospital Management. Edited by CHARLOTTE A. AIKENS, Author of "Hospital Training School Methods and the Head Nurse," etc. 12mo. 488 pages. Illustrated. Philadelphia and London: W. B. Saunders Co. 1911. Cloth, \$3 net.

The hospital that has the necessary building, equipment, nurses, and funds for maintenance, is often sadly handicapped by bad management, and this consideration is many times the turning point between satisfactory and unsatisfactory service for the patient. We have known this one thing to cripple otherwise good institutions, and cause physicians to send elsewhere patients in need of hospital treatment. This handbook, which is a collaboration of articles by a number of authors, is intended as a guide for all who are engaged in promoting hospital work, whether trustee, superintendent, training school principal or physician. It contains much interesting data, and the suggestions for management are the result evidently of experience and will, on the whole, prove of service in many ways to those concerned in the good conduct of hospitals.

Editorial.

New Medical Law in Virginia—Practitioners Required to Register.

For a number of years the law governing the practice of medicine in this State has been recognized as inadequate to control irregular methods of practice. Quacks of every believable description have appeared in various sections and offered their services for remuneration to a credulous public, claiming by virtue of their special methods to cure disease with which they have demonstrated no knowledge of pathology or symptomatology, and which, consequently, they are not in position to intelligently diagnose. Such tricksters have flimflamed the people to an amazing extent, and no existing statute has seemed sufficient to circumvent them. With a view, therefore, to securing amendments to the law for protection against such unscrupulous pretenders, the Medical Examining Board of Virginia at its meeting during December, 1911, appointed a committee consisting of Drs. Herbert Old, J. E. Warinner and H. S. Corey, to appear before the

recent session of the Legislature and urge the passage of a revised bill. This was first submitted to and approved by the three medical schools in Virginia; it was likewise satisfactory to the Homeopaths and Osteopaths. With such endorsement, the bill succeeded in passage through the Legislature and has been signed by the Governor. The form and substance of this bill is to change the law so that:

On and after April 1, 1914, the Medical Examining Board of Virginia shall consist of one regular physician from each congressional district, one homeopath, and one osteopath, all of whom shall be nominated by their respective State medical societies, and appointed by the Governor.

Within one year after the passage of this act, all practitioners who hold certificates, or are entitled to same, from the Medical Examining Board of Virginia will have to present them to the clerk of the county or corporation court of the county or corporation wherein such practice is to be carried on, for registration in the "Medical Register"; and he shall record therein, under oath, the name, residence, place and date of birth, and source, number, and date of the certificate to practice, and the school of practice to which each licensee professes to belong.

The holder of a certificate to practice medicine must have the same recorded upon each change of residence to another county or corporation, and the absence of such record shall be *prima facie* evidence of the want of possession of such certificate.

Legal practitioners of medicine practicing under the provisions of previous laws, who have not already received a certificate from the Medical Examining Board of Virginia, shall present to the Board documents sufficient to establish the existence and validity of a diploma granted to each by some *bona fide* college of medicine, or to establish their exemption existing under any law, and shall receive from said Board a verification certificate, which shall be recorded as provided above for original licensees.

Such verification certificate will be issued to all practitioners so qualifying who have not already received a certificate from the Medical Examining Board of Virginia for a fee of 50 cents.

It is especially provided that those whose claims to State certificates rest upon having practiced in this State before the year 1885, or, if an osteopath, before the year 1903, shall present to the Board satisfactory evidence of having legally practiced medicine in this State previous to the above stated dates in order to obtain said verification certificates.

Legal practitioners who have lost their State Board certificates must obtain duplicate certificate by furnishing to the Board satisfactory proofs of the issuance to the individual of the former certificate and upon the payment of a fee of one dollar, and the new certificates must be registered as hereinbefore provided for original certificates.

The Board may refuse to admit candidates to the examinations or to issue the certificate provided for in this act, or may revoke any certificate or verification certificate granted by it or any other board of medical examiners of this State, in any of the following cases: (a) A practitioner of medicine who is guilty of any crime or misdemeanor, or who is guilty of any fraud or deceit by which he was admitted to

practice; or (b) if he be an habitual drunkard or habitually addicted to the use of morphine, opium, cocaine or any other drugs having a similar effect; or (c) if he undertake or engage in any manner or by any ways or means whatsoever to procure or perform a criminal abortion, as the same is defined by the law of this State.

Admission to Examinations: Any candidate who pays a fee of twenty-five dollars, and submits evidence, verified by affidavit and satisfactory to the Board, that he—(a) Is 21 years of age or over; (b) is of good moral character; (c) had prior to his first year of medical study the general education required preliminary to receiving the degree of bachelor or doctor of medicine of this State; (d) has studied medicine not less than four school years, including four satisfactory courses of at least eight months each in four different calendar years, in a medical school registered as maintaining a standard satisfactory to the State Board of Education. [Requirement (d) does not go into effect until the year 1914.]

The preliminary requirements are—graduation from a registered college, or satisfactory completion of a full course in a registered academy or high school; or a preliminary education considered and accepted by the State Board of Education as fully equivalent; or a medical student certificate from the State Board of Education; or the applicant must pass State Board of Education examinations, securing the required number of units of preliminary work according to the standard of the Association of American Medical Colleges.

The Board may at their discretion admit conditionally to the examinations on anatomy and histology, physiology and embryology, and chemistry, applicants 19 years of age or over, certified as having studied medicine at some registered medical college not less than two years, including two satisfactory courses of at least eight months each in two different calendar years and of having passed in all of these medical branches at the said college; but the said college must be registered as maintaining at the time a standard satisfactory to the State Board of Education; provided, further, that they must meet requirements (b) and (c).

Instead of giving an oral examination, thereby avoiding the personal element between examiner and applicant, the new law provides that those who have had five or more years of legal and reputable practice in other States must take the same examination as the other candidates save that they are exempted from taking the sections on anatomy and histology, physiology and embryology, and chemistry.

It is also provided that graduates of any school of medicine who profess to practice medicine according to the tenets of some particular school shall fulfil all of the conditions of the Board and the State Board of Education, save that they are exempted from taking the examination of the regulars on practice of medicine, materia medica, and therapeutics.

Further, a license to practice some particular school shall not permit the holder thereof to administer drugs nor perform surgery with the use of instruments unless they satisfy the Board that they have had adequate clinical facilities at their college of graduation or by hospital work to enable them to perform surgical operations.

The Board is given the power to prescribe rules, regulations and by-laws for its own proceedings and

government and for the examination by its members of candidates for the practice of medicine, including the scope of the said examination.

The new law puts the burden of proof on the defendant to show that he possesses or is entitled to possess a certificate from the Medical Examining Board so as to qualify himself as a legal practitioner of medicine.

Temporary permits are dispensed with.

The fee of twenty-five dollars allows one to come before the Board once again within one year in case of failure.

Those who are exempted from taking the examination are the same as under the old law, with the exception of the following: Persons, not pretending to be physicians, who offer for sale on the streets or other public places, or who leave gratuitously at residences, remedies which they recommend for the healing or curing of disease.

This article shall be construed to repeal all acts or parts of acts authorizing conferment of any degree in medicine *causa honoris* or *ad eundem gradum* or otherwise than on students duly graduated according to the provisions of this act.

This being an emergency act, goes into effect at once.

The strength of the bill lies chiefly in the fact that it calls for a registration, within one year, of every physician now resident in the State. Heretofore there has been no such registration in Virginia, and it has been largely due to this omission—the non-issuance of certificates to those originally exempted from taking examinations—that permitted any quack forty years of age or over to settle anywhere in the State and plead exemption on the ground that he was practicing in Virginia prior to 1885. Physicians generally are urged to comply with the registration law as above indicated without undue delay.

The Medical Examining Board has been given much power and wide discretion, having it largely within its control, henceforth to say who may and who may not practice or continue to practice medicine in Virginia. Past experience has demonstrated that the wide latitude granted by the Legislature is necessary for effective regulation. Beyond peradventure the Medical Examining Board of Virginia has been wisely named to exercise such power, and we confidently believe that the Board as constituted and governed will guard the best interests of the public and legitimate medicine with wisdom as well as justice.

It should be stated that the Committee of the Medical Examining Board is much indebted for the valuable advice and assistance of Col. James Mann, of Norfolk; Dr. Geo. Ben Johnston, of Richmond; Dr. A. G. Crockett, the patron of

the bill in the State; Dr. H. U. Stephenson, in the House, as well as Mr. Edward Cox and Judge Williams in the House, and Messrs. Lesner and Walker in the Senate. The thanks of the Committee is also due Messrs. Wm. W. Old, Jr., and Charles Webster, of Norfolk, and Judge Harvey for valuable assistance in framing the bill.

Virginia Health Almanac Commended.

A recent issue of *Collier's Weekly* is highly commendatory of the *Virginia Health Almanac*, issued by the State Department of Health. As indicated in the *Weekly*, it is the idea of the patent medicine people, intended in this instance for good rather than harm.

In the form of an almanac, this health bulletin is received in many homes where there is need of sanitary enlightenment, and perchance some one or more truths may be imbibed which will prove conducive to the conservation of health. As a testimonial of the value placed upon this method, the Kansas Health Department has adopted the *Virginia Health Almanac* with modifications to suit diseases especially prevalent in that locality.

Reception Hospital to be Run in Connection With Catawba Sanatorium, Va.

At the last meeting of the Virginia Board of Health, which was held in Salem, Va., in the latter part of March, it was decided to build a reception hospital for patients desiring to enter Catawba Sanatorium, so as ascertain their condition before receiving them at the State Sanatorium for Tuberculosis, and thus prevent the admission of those in advanced stages of the disease. The hospital will cost about \$40,000, and will be located at the junction of the Norfolk and Western Railway with the Catawba Valley, about two miles east of Salem.

Vital Statistics in Virginia.

In order to secure the most effective administration of the new Vital Statistics Law in Virginia, officials of the Health Department have been visiting registration areas, and the Health Commissioner has also been in conference with the Chief of the Bureau of Vital Statistics at the Census Office. It is the aim of the State Health Department to get affairs in working order before June, at which time this bill becomes a law. Dr. W. A. Plecker, who has already done efficient work for the

Department, will be Director of the Bureau of Vital Statistics, in Virginia.

The Olivia Jones Hospital,

The private hospital of Dr. H. E. Jones, of Roanoke, which has just been completed, is a brick building with all modern conveniences, and is centrally located. It is designed and equipped for the management and treatment of practically all diseases with the exception of contagious and infectious ones which are treated outside of the hospital. When there are vacant rooms, the privileges of the hospital are allowed local physicians who desire hospital facilities for patients they wish to treat personally.

Dr. Crawford Long's Memory Honored.

On March 30th, the seventieth anniversary of the day on which Dr. Crawford W. Long, a native of Georgia, first used ether as an anesthetic in surgery, there was unveiled at the Medical School of the University of Pennsylvania, a bronze tablet in commemoration of the event. It seems most appropriate that the event should have been celebrated at this institution, the one at which ether was first used as an enesthetic. Addresses were made by distinguished members of the profession.

North Carolina to Have State School for Feeble-Minded.

Work is getting under way for the erection of the main building and two dormitories of the North Carolina State School for Feeble-Minded, which is to be opened at Kinston, about November 1st. Three hundred applications are already in hand, though there will only be accommodations for 175 inmates until the capacity is increased. Dr. Ira M. Hardy, of Kinston, has been selected by the trustees as superintendent.

Funk and Wagnalls Company,

New York, have secured the American rights to "A System of Surgery," in which each branch of surgery is treated by foremost specialists in Great Britain, so that the work practically comprises the whole field of surgery from the viewpoint of foremost British practitioners. It will be published in three octavo volumes, profusely illustrated, the first to be issued about the middle of April, the others about the Fall of 1912.

Recent Militia Commissions in Virginia.

Dr. J. Fulmer Bright, Richmond, has been

commissioned major, Medical Corps, Virginia Volunteers; Dr. Samuel W. Maphis, Warrenton, captain, Medical Corps, Virginia Volunteers; and Dr. H. Norton Mason, Richmond, has been appointed surgeon of the Richmond Light Infantry Blues, with the rank of captain.

Dr. Welch to Speak at University of Virginia.

Dr. William H. Welch, professor of pathology at Johns Hopkins University, will give a series of lectures on the Barbour-Page Foundation, at the University of Virginia, April 17th, 18th and 19th. His general subject will be "The Development of Medicine as a Science."

The Southside (Va.) Medical Association

Held its last quarterly meeting in Suffolk, March 12th, the new president, Dr. J. E. Rawls, of Suffolk, in the chair. A number of papers were read, and clinics at two of the hospitals were followed by a banquet at the Nansemond Hotel. The next meeting will be held June 11th, in Petersburg.

Dr. G. Betton Massey

Announces that he has resigned from the Staff of the Oncologic Hospital, and opened a private sanitarium at 1823 Wallace Street, Philadelphia. The institution has been equipped with apparatus for the various uses of electricity and other physical forces in the treatment of appropriate cases.

New Hospital for Leonard Medical School, Raleigh, N. C.

A \$47,000 hospital building to be run in connection with the Leonard Medical School, at Raleigh, has been finished, and will be used for negro patients entirely. It is complete in its details, and is to be run under the direction of leading Raleigh physicians.

Tuberculosis Day.

As a result of the work of the allied anti-tuberculosis societies of the United States, Sunday, April 28th, has been set aside as National Tuberculosis Day, when many thousand sermons will be preached throughout the country on the preventive measures necessary to fight the white plague.

W. B. Saunders Company,

Of Philadelphia, have recently issued a new edition of their Illustrated Catalogue, describing some forty new books and new editions

published by them since the issuance of their former catalogue. Copies may be obtained free by addressing the company.

Dr. Francis M. Chisolm,

Formerly associated in the practice of eye, ear, nose and throat diseases, with Drs. Griffith and Poole, at the Farragut, Washington, D. C., has opened his office at 1632 Rhode Island Avenue, N. W., in the same city.

C. V. Mosby Medical Book and Publishing Co.,

St. Louis, announce the publication, early in April, of a book on Pellagra, by Roberts. It promises to be exhaustive, practical and up-to-date, with illustrations.

Fredericksburg Health Board.

Drs. J. N. Barney and C. Mason Smith were recently elected members of the new city Health Board of Fredericksburg, Va.

Surgeon W. M. Wheeler, U. S. N.,

Has been ordered to duty at Marine Barracks and Marine Recruiting Station, Norfolk, Va.

"Papyrus Ebers."

Dr. Carl H. von Klein, of the Medical Department, John Crerar Library, Chicago, announces the completion of his translation of the "Papyrus Ebers" into English, but finds it necessary to secure several hundred additional subscriptions, at \$5 a copy, which will be turned over to the printer as a guarantee for the cost. Dr. von Klein, who is now 70 years of age, has devoted twenty years of his life and much expense to this translation, which will be lost to the profession if the necessary subscriptions are not obtained to insure its publication.

The book will consist of 650 pages, with six plates, bound in one volume.

For Sale—Sanatorium with complete equipment, located in the best section of the Magic City of Roanoke. For *particulars* and *terms*, address The Keister Home Sanatorium, 22 Seventh Avenue, S. W., Roanoke, Va.

For Sale—Unopposed country practice in Tidewater section of Virginia, with ten room residence, barn, etc., by doctor who wishes to specialize. An excellent neighborhood in fine farming section, convenient to churches and schools. Roads good. Nearest physician, twelve miles. For full particulars, address H. J. K., care this journal.

Obituary Record.

Dr. J. Newton Lewis.

Doctors throughout the State will be shocked to hear of the untimely death of Dr. Lewis, on the night of April 6th, as the result of an automobile accident. With a party of friends he was returning to his home, when the driver lost control of his car about five miles from Roanoke, causing it to run into a fence, with fatal results to Dr. Lewis and another member of the party.

Dr. Lewis was born in Jefferson County, West Virginia, forty-five years ago, and received his academic education at Washington and Lee University. He studied medicine at the College of Physicians and Surgeons, Baltimore, from which he graduated in 1892, and located in Roanoke, Va., where he has since made his home, and had become one of the leaders in the profession. He was prominently identified with the State and local medical societies, was coroner of Roanoke for a number of years, and a surgeon of the Norfolk and Western Railway. His widow survives him. A brother, Dr. D. G. Lewis, also a member of our State Society, resides in Washington, D. C. By his genial manner and sterling qualities, Dr. Lewis had endeared himself not only to many citizens of his section, but also to the profession throughout the State.

Dr. John Henry Neff,

For many years one of the most prominent physicians of Northern Virginia, died of apoplexy, March 18th, at the University of Virginia, and was buried at Harrisonburg, Va. He was born in Shenandoah County, Virginia, October 11, 1843, and received his academic education at Roanoke College. Upon graduating in medicine from the University of Virginia in 1870, and from the University of the City of New York, in 1871, he was appointed House Physician to Charity Hospital, New York City, for 1871-72, and was physician to Small-pox and Fever Hospital in that city in 1872-73. After this, he was located in Harrisonburg, until about two years ago, when he moved to University, for the purpose of educating his sons. His eldest son, Dr. John Neff,

is an interne at the University of Virginia Hospital.

He was a member of the Medical Society of Virginia, serving as first vice-president in 1900, and a member of the Medical Examining Board of Virginia from its organization until November 1891. His wife and six children survive him.

Dr. Henry Shaw Etheridge,

Another beloved physician of the "old school," died at his home in Port Norfolk, Va., February 24, 1912, after a short illness from pneumonia. He was born in Currituck County, North Carolina, October 10, 1839, and came to Virginia at an early age. After an academic education in private schools, he studied medicine and graduated in April, 1861, from the Eclectic Medical Institute, of Cincinnati. He was a member of his State and local medical societies and had served some time as a member of the Norfolk County Board of Health.

Dr. Andrew H. Whitridge

Died in Baltimore, Md., March 19th, aged 41 years. He was a graduate of the Harvard Medical School, in 1894, and of the Medical Department of Johns Hopkins University in the class of 1898. For more than eleven years he had been medical director of the Maryland Life Insurance Company, the members of which, with a host of friends, will feel his loss keenly.

Dr. W. F. Payne,

Chairman of the Republican Committee of Rockingham County, died March 18th, at his home in Dayton, Va., of dropsy and bronchitis, aged 50 years. He graduated from the Medical College of Virginia in 1891, and in addition to his professional work took an active part in the politics of his county. His wife and six children survive him.

Dr. Hugh L. Blanton,

A prominent and beloved citizen of Cumberland County, Va., died at his home, Adriance, that County, April 5th, aged seventy-nine years. He was a graduate of the University of Pennsylvania, Department of Medicine, in 1855. Several children survive him.

THE Virginia Medical Semi-Monthly.

(FORMERLY VIRGINIA MEDICAL MONTHLY.)

Vol. 17, No. 2.
Whole No. 386

RICHMOND, VA., APRIL 26, 1912.

\$2.00 a Year.
10 Cents a Copy.

Original Communications.

A CASE OF HYDROPHOBIA IN MAN.*

By GEORGE TULLY VAUGHAN, M. D.,
Washington, D. C.,

Professor of Surgery University of Georgetown;
formerly Asst. Surgeon-General U. S. P. H.
and M. H. S.

W. R., colored, male; aged 67 years; nativity, Virginia; occupation, laborer; was admitted to the Emergency Hospital, November 24, 1911. It was through the courtesy of Dr. S. T. Ashton, of Ballston, Va., that the patient came under my care, and the history up to the time I saw him was obtained from Dr. Ashton, who had known the patient for several years.

Patient had had no other serious illness. He was bitten by his own dog about two months before, two teeth penetrating the skin of the right wrist, the scars of the wounds being still clearly visible. Dr. Ashton cauterized the wounds, and they healed without trouble. Nothing is known as to the dog's health, but he was annoying a chicken, and when his master seized him to make him behave he was bitten. The dog was killed, but no examination was made, and nothing was thought of the matter until about November 17th, when the patient began to feel pains in the right forearm and arm, running up to the shoulder, and of a tingling character. Dr. Ashton was consulted, and having forgotten about the dog bite, regarded the trouble as rheumatic or neuralgic in character and prescribed accordingly.

On November 22d, Dr. Ashton was sent for and found the patient quite ill, unable to swallow and having convulsions on attempting to swallow.

November 24th, his condition had not improved, and Dr. Ashton being convinced that he had a case of hydrophobia to deal with, brought him to hospital in his buggy. At the hospital he had to be supported in walking into the hospital

or he would have fallen. There was a general appearance of collapse with drooping figure, half open mouth, but a rather distressed expression of countenance. Pulse 115 to 120, intermittent at times; axillary temperature 98.8; patella tendon reflexes exaggerated. Seated in a chair he looked weak and helpless with body stooping forward and head drooping. Now and then he would take one or two sobbing inspirations. Fanning caused stiffening of his body and brought on sobbing inspiration. Speech was like that of one with lips or tongue partially paralyzed, enunciation being imperfect and difficult at times to understand.

His mind was evidently clouded, as shown by contradictory statements. No saliva dripped from his mouth, nor did he cough, but Dr. Ashton said that he had had both symptoms and had shortly before received a dose of morphine and scopolamin. Asked if he wanted a drink of water he said yes, but that he could not swallow—that he had not been able to swallow for two or three days. He was given a drink of water, which he willingly took in his mouth and attempted to swallow, when a look of distress or terror came over his face and the water was ejected. Later on the same day he did swallow. At 6 P. M.—about six hours later—he was given milk and eggs and swallowed without difficulty. 11 P. M., sleeping. At 12 o'clock midnight got out of bed and called for his clothes.

November 25th, 3 A. M.—Drank egg and milk, but would not stay in bed; $\frac{1}{4}$ grain of morphine given hypodermically. 4 A. M.—Quiet. 5 A. M.—Up, knocking on his door and asking to be let out. 8 A. M.—Quite restless; temperature (axillary) 99.8, pulse 104, respirations 20. Given albumen water and had some difficulty in swallowing. 9:30 A. M.— $\frac{1}{4}$ grain of morphine given. 10 A. M.—Expectorating frothy mucus, but ate sausage and bread and drank milk. 12 o'clock noon—Very nervous; $\frac{1}{4}$ grain of morphine given. 2 P. M.—Very

*Read before the Medical Society of D. C., April 3, 1912.

much excited and talkative, but ate bread and soup. 3 P. M.— $\frac{1}{4}$ grain of morphine given. 4 P. M.—Sleeping. 5 P. M.—Insists on going out to finish his evening's work. 7 P. M.—Very restless. Took his bed to pieces. Temperature 99.6, pulse 100, respirations 28; $\frac{1}{4}$ grain of morphine given. 8 P. M.—Quiet, but not asleep. 8.40—Much excited; took his bed to pieces again and banged on the floor with some of the parts. Morphine given. 10 P. M.—Quiet, but not asleep; prays most of the time.

November 26th, 4 A. M.—Very restless, talking through the window to an imaginary person. 7 A. M.—Has rested and slept at intervals since 4 o'clock. Takes food well. 8 A. M.—Coughs and expectorates a great deal; more delirious. Temperature 102.2. 9:45 A. M.—The patient was sitting on the side of his bed and the nurse was preparing to give him some medicine, when, without warning, he fell over dead.

Necropsy seven hours after death by Dr. A. M. Stimson, of the P. H. and M. H. S.: Cadaveric rigidity marked. Brain slightly congested and with the medulla was taken to the laboratory for examination. The heart seemed normal, coronary arteries tortuous. Liver, spleen and lungs normal. Both kidneys contained a few small cysts and the right kidney was somewhat smaller than the left. During life they appeared to functionate quite well, and analysis of urine showed color, yellow, specific gravity 1028; reaction acid; a heavy trace of albumin; hyalin and granular casts and epithelial cells present.

December 18th—Dr. Stimson sent me the following account of his laboratory examination and tests: "I wish to inform you of the results of the examination of the brain of the hydrophobia patient, W. R., who died at the Emergency Hospital, November 26, 1911. I have delayed in sending you this report until the completion of the animal experiments. Negri bodies, well developed, but not very numerous, were found in the cerebral cortex, Ammon's horn and the cerebellum. On November 27th a portion of the medulla, which had been kept over night in glycerin, was emulsified in salt solution and inoculated subdurally into 6 animals, 3 rabbits and 3 guinea pigs. One rabbit died three days later with symptoms of a brain lesion, and on autopsy the cortex was found to be greatly compressed by an excessive collection

of fluid on the surface and in the ventricles of the brain.

"The remaining five animals, after being in apparently good health for from ten days to two weeks, developed symptoms of rabies and died, and many Negri bodies were found in the brains of four of them, the remaining one not being examined on account of decomposition.

"This examination confirms the clinical diagnosis, and puts it beyond the possibility of contradiction.

"I feel that this case should be reported before a medical body if only as a matter of record. There were several interesting features which might be of value in diagnosing a similar case, for instance, the recovery of the ability to swallow after its loss, and the hysteroid nature of the mental symptoms at one period."

I fully agree with Dr. Stimson in the advisability of reporting every case of this kind if for no other purpose than that of proving the existence of the disease to some who disbelieve its existence. I do not know if there are at present any intelligent physicians who doubt the existence of hydrophobia, but I know there were a good many ten or fifteen years ago.

In a book published in 1904, one of these gentlemen thus expresses his views: "Most, if not all, cases of so-called hydrophobia are not hydrophobia at all. The author has studied this subject with great care for many years, and has become satisfied that the popular theory in regard to hydrophobia is utterly wrong. He also believes that it will some day disappear, as the belief in witchcraft, which not long ago was supported by the most respectable medical, clerical and popular authorities, has disappeared. * * * So-called hydrophobia exists exactly in proportion to the common belief in it and the amount of discussion it gets. In Paris more cases occur than in any place of its size in the world, because there the medical men are continually keeping the subject before the people. In this country a few newspapers more or less constantly do the same thing."

This, gentlemen, would seem to be actuated by the spirit of Eddyism—believe that a thing does not exist, and, lo, it is so.

1718 I Street, N. W.

A STUDY AND REVIEW OF SPLANCHNOP- TOSIS OF VISCERA OF CHEST AND ABDOMEN—WITH REPORT OF AN UNUSUAL CASE.

By H. E. JONES, M. D. Roanoke, Va.,
Physician and Surgeon to Olivia Jones Hospital.

This condition is named in the text—by *Butler*, Splanchnoptosis; by *Osler*, Enteroptosis (Glenard's disease) or Visceroptosis; and is described as a "dropping of the viscera." The text states it "is not a disease, but a symptom group characterized by looseness of the mesenteric and peritoneal attachments, so that the stomach, the intestines, particularly the transverse colon, liver, the kidneys and the spleen occupy an abnormally low position in the abdominal cavity." In looking up the literature on the subject, none of the texts described a splanchnoptosis or visceroptosis of the viscera of the chest. The only thing I could find that referred to the chest viscera was under the head of the heart, where it was mentioned that this organ was displaced in pleuritic effusions and in pneumothorax, but did not state that the displacement from these causes was downwards, which is necessary to bring them in this category. Nor was there, under the head of the lungs, any reference to their downward displacement; nor was there any mention, under the head of diseases of the blood vessels, of the downward displacement of the arch of the aorta; hence, my conclusion was that the various authors referred to were not of the opinion that such a condition as splanchnoptosis of the viscera of the chest existed.

As a matter of fact, such a condition may exist, and has done so for a long time, but has been overlooked by the authors of text-books as well as by the rank and file of the profession, ourselves included.

As to the cause, it is stated there are two, one for two different groups of cases. In the first group, there is "loss of normal support of the abdominal wall in consequence of repeated pregnancies or recurring ascites. In the second group we find young and middle-aged persons with more or less marked neurasthenia and spare habit, with abnormally loose or relaxed mesenteric and peritoneal attachments, which are acquired or congenital.

The symptoms of splanchnoptosis are those of neurasthenia with all of its symptoms, "dyspepsia, throbbing in the back, and dragging

pains or weakness in the back and inability to perform the usual duties of life; erythematous flushing of the skin, aortic pulsation easily seen, a feeling of exhaustion and general nervousness, constipation and loss of appetite."

As to making a diagnosis of splanchnoptosis, this is imperative for the welfare of the patient; and to do so we must be able to make a thorough physical examination of the viscera of the chest and abdomen, and must be thoroughly familiar with the normal position of all the organs of these two regions of the body. If we do not possess this accurate knowledge of their respective positions, we will not be able to recognize a special "dropping of the viscera," nor a general dropping of the viscera either of the chest or abdomen, even if we possess considerable skill in making physical examinations, or as much skill as the highest type of physicians. To make an absolutely satisfactory diagnosis, it is necessary to seek the aid of the radiographer and have him to make a skiagraph of the viscera of both the chest and abdomen. If I had not sought the aid of Dr. Brady in the case I am about to report, I would not have discovered a most interesting and unusual condition, nor would the profession as a whole have known, probably for years to come, that there was such a condition as splanchnoptosis of the viscera of the chest.

Before resorting to the X-ray, three of us diagnosed part of this, probably, unusual condition, but by no means all of it; the X-ray saw what we failed to see, and made the diagnosis complete, thus enabling us to apply rational and beneficial treatment with great relief to the patient and credit to ourselves.

Treatment.—Relieve the neurasthenia, nervous and mechanical dyspepsia and constipation, by symptomatic, hygienic and dietetic treatment, tonics, and mechanical support to the displaced organs. Also use posture by elevating the foot of the patient's bed, and once or twice a day put body of patient in a vertical position, head down, for a few minutes, and while in this position, by mechanical manipulation, strip the organs of abdomen and chest downward towards the head. Then use both adhesive and elastic abdominal bandage for mechanical support of the displaced organs to support them when patient is in vertical position, head up.

Case.—M. S. W. Hebrew, age 43, weight 105 pounds, height 5 feet 7 inches, dark complexion.

Heaviest weight during prime of life, 130 pounds, spare build.

History and symptoms show that patient has always been delicate, but health was sufficient to permit him to attend to his occupation as merchant. Two years ago he began to fail in health. Gradually he became emaciated, anemic, nervous and weak, no appetite, digestion poor, depressed in spirits, emotions easily excited, and life to him became miserable, with inability to perform the usual duties of life. Pulse slow; temperature, usually sub-normal, ranged from 97 to 98, until his condition was diagnosed and he received appropriate treatment, when his temperature ranged between 98 1-5 to 98 3-5.

On physical examination it was found that the chest was asymmetrical and flat; the supra-clavicular fossæ were very deep, unusually so, and would hold about half a cup of water; interspaces between 1st, 2d, 3d and 4th ribs were very distinct. Low down on right anterior aspect of chest over region of liver the chest was markedly flattened. There was resonance on percussion over the entire area, without normal dullness—in fact, over the upper portion of chest and low down on right side over the hepatic region there was hyperresonance. On auscultation there were no abnormal sounds, no rales except from the third rib up the respiratory sounds were very indistinct; neither were there evidences of bronchitis or tuberculosis, though the patient's general appearance indicated the latter condition. By ordinary physical examination the heart was found to be abnormally low, but the sound showed no irregular action; rhythm regular, force decreased, no murmurs, no œdema, cyanosis or dyspnoea; respiration, when quiet, 15.

On examining the abdomen, the liver (upper border) was found below the 11th rib, and the bulk of the organ was in the abdominal cavity. Right kidney was displaced downwards and was lying under McBurney's point. Upper border of stomach was near navel, and transverse colon displaced downwards below stomach. The spleen, strange to say, was the least displaced organ in the abdomen except the left kidney and possibly pancreas. The lower abdomen from just above the navel (waist line) to pelvis was prominent and slightly bulging; no jaundice was present, though there was constipation. Skin was erythematous; front of chest

was also blistered from counter-irritation by attending physicians for pains in chest. The only chest symptoms present were pains over front of chest, radiating upward and outward to shoulders, and down the arms to elbows. Latter condition diagnosed rheumatism by patient and attending physicians; some discomfort was caused when patient used his arms, which could not be carried above his head without producing much pain.

Abdominal symptoms were those of dyspepsia, —slight pains with dragging, heavy feeling. Suffered with some pain in small of back. He was nervous, depressed and could not sleep more than three or four hours a night unless he was given a hypnotic. The following is Dr. E. T. Brady's skiagraphic report:

"The skiagraph of your patient, Mr. S. W—, is both diagnostic and unusual. It shows the most extreme degree of splanchnoptosis which it has ever been my fortune to examine. Beginning at the top, there is entire absence of lung tissue on both sides as low as the lower edge of the third rib. The arch of the aorta is distinctly outlined and is displaced to the left, its upper border being on a line with the lower border of the third rib. The heart is almost central, its centre being immediately beneath the ensiform appendix. The anterior attachment of the diaphragm is on a line with the vertebral attachment of the twelfth rib. The upper margin of the liver is only about two inches above umbilicus. The stomach, almost vertically placed, is to the left, and its upper edge about one inch above umbilicus. The pyloric end is behind the pubic arch. The colon is coiled in irregular folds deep in the pelvis. The spleen is, strange to say, only about an inch below its normal site, and is apparently fibroid."

The reason the right kidney was not given in Dr. Brady's report as being *displaced* was due to its having been put in position by me when I first examined the patient. It was replaced with some difficulty, and, strange to say, has remained in its normal position ever since.

If you will notice from the above report, there is some discrepancy between the results of the physical examination and that of the skiagraph, in that we did not recognize the splanchnoptosis of the lungs, the heart, the arch of the aorta, nor the great degree of splanchnoptosis of all the other organs, as did the skiagraph. Hence, in

these cases the importance of repeated careful physical examinations is to be emphasized; and, finally, use the X-ray on all such cases should be remembered as likely to be of benefit in diagnosis.

Treatment.—The patient was put to bed for the purpose of giving him rest. He was given a bitter tonic, and diet was restricted to a light nutritious food, cereals, milk, cream, white meats, and vegetables. Dr. L. G. Pedigo bandaged his abdomen with broad adhesive strips, and I had him wear an abdominal elastic bandage over this when he was allowed to be up in hospital for exercise. For a few days the foot of his bed was elevated 12 to 15 inches, and each night I had him to lay across the bed and carry his head to the floor, which position placed his body in vertical position, head down, when I had him make deep inspirations and forcible expirations. Then I would forcibly press or strip the abdomen, making pressure as regards position down towards chest and head; by this means all the organs were forced toward their natural position, and tension on the peritoneal and mesenteric attachments of the abdominal organs was relieved, as was also the tension on attachments of the lungs, arch of aorta and heart. In a few days the pains in chest, shoulders and arms, previously referred to, were suddenly relieved, and remained so for two weeks, when patient left the hospital.

The pain in chest, shoulders and arms was evidently due to the tension on the attachments of the organs in the chest. Appetite was regained, digestion became better, and weight increased some 10 pounds. Neurasthenia also practically disappeared, patient became more hopeful, and was getting anxious to return to business.

While in the hospital Dr. L. G. Pedigo lavaged his stomach at 8:30 each evening, or every other evening, for the purpose of giving the stomach 10 or 12 hours rest, as well as to give it a chance to tone up and contract. The patient was also taught by Dr. Pedigo to lavage his stomach so that this necessary treatment could be continued at patient's home for as long a time as would be found necessary.

With the above outlined treatment and constant use of the abdominal support I believe the patient will be able to attend to his usual duties and be altogether more comfortable for the balance of his life. Without a correct diagnosis we

could not have given him this relief. This man's splanchnoptosis was so extensive that surgery was out of the question as a remedial measure.

An unsolved question in this case is whether the condition is congenital or acquired.

In a presumably exhaustive discussion on Enteroptosis, Its Symptomatology and Treatment, by Thomas R. Brown, M. D., of Baltimore, reprinted from *American Medicine*, August 15, 22, 29, 1903, in which are expressed his views and those of American, English, French and German authors, I find that none of them made mention of splanchnoptosis of the viscera of the chest. I have examined all the text-book literature at my command, besides quite a number of the best medical journals for a number of years back, and I cannot find any account or mention of the subject of dropping of the viscera of the chest. The idea with all of them is that dropping of the viscera is only found below the diaphragm in the abdominal region.

I read this paper at one of the clinical meetings at the Jefferson Hospital, of Roanoke, at which some twenty physicians were present, and also read the skiagraphic report of this case before an equal number of physicians at the Roanoke Academy of Medicine. At neither of these meetings did any physician claim that he had ever seen in his private practice, or had found reported in journal or text-book literature a similar case.

If any one who happens to read this paper has ever seen a case of splanchnoptosis of the viscera of the chest, in private practice, or reported in literature, he will do me a great favor by giving me the facts.

TREATMENT OF SHOCK DUE TO HEMORRHAGE.*

By GEO. W. NORMAN, M. D., Pomona, N. C.

I shall not in this short paper even touch on the methods of controlling hemorrhage, but shall confine myself strictly to the treatment of shock. We will, therefore, assume that all hemorrhage has been controlled, but that the patient is in profound shock, due directly to the great loss of blood.

The treatment of this condition is both surgical and medicinal; and, while I shall speak of them separately, such is not to be the case in

*Read before the second annual meeting of the Eighth Medical Council District with the Guilford County Medical Society, at Greensboro, N. C., March 7, 1912.

practice, for if there ever is a time when the physician needs to be a surgeon and the surgeon a physician it is in the treatment of this condition, for what at another time might be only poor surgery, or an unwise choice of drugs, may here result disastrously for the patient.

In the way of surgical treatment, we have to consider position, auto-infusion, enteroclysis, hypodermoclysis, infusion, and transfusion. By position (recumbent. head low), we encourage the flow of blood to the vital centers, thus, in a measure, overcoming anemia of the brain. This is further accomplished by auto-clysis, and our object here should not be merely to bandage the limbs snugly, but we should first force out, as near as we can, all blood from the limb; then, if we have an assistant, have him to hold the limb in an upright position and with end of finger compress the artery near the body; then with bandage, beginning at the extremity, bandage the limb tight enough to keep the blood out (just as if we had a tourniquet applied). These bandages should not remain very long, and in no case should we leave our patient while they are on. In the removal, if there has been very great loss of blood, loosen up and gradually remove from one limb and watch conditions a while before removing others. To remove them all at once would be equivalent to bleeding our patient a second time; for, if the bandages have been properly applied, the blood vessels in the limbs are almost empty and, of course, will at once fill, thus taking blood from the vital centers.

After the limbs are bandaged, and it should be done quickly, enteroclysis and hypodermoclysis should be started. For enteroclysis, use 9-10 per cent. saline solution with one-half ounce of glucose to the pint of solution, drop method, to be put as high up in bowel as is possible. The solution for hypodermoclysis should be the same saline solution and should be put under (not into) the breast. It is more readily absorbed here, thus getting quicker results.

If the loss of blood has been so great that, in spite of the previous mentioned treatment, the volume of blood continues small and shock is not overcome, we should at once begin infusion. The method here should be somewhat different to that in ordinary cases in which the arm is corded to make the vein more prominent. This procedure would keep some of the blood in the extremity, just what we do not want, so, instead

of cording the arm, after the arm has been prepared antiseptically, make incision through the skin, beginning at either condyle of humerus and extend down to the center of arm just below biceps tendon; then carry incision to opposite condyle. Dissect this flap back and we come to the median cephalic or median basilic vein. If neither of these can be found, carry the flap farther back and we come to the basilic and cephalic, one on either side. The vein found, pick it up. A ligature should be thrown around below and tied in a hard knot. Another ligature should be thrown around the vein higher up. This should not be tied. Cut the vein between ligatures, insert needle in lumen of vein, tying ligature over needle, one knot, to prevent escape of fluid, and start the solution, which should be normal saline solution, at about 100 degrees F., allowing it to flow gradually. The quantity to be used is from one to four pints, being governed by results. Should we desire, this vein can be used again by loosening ligature. A few stitches close the wound.

Transfusion, or the transferring of human blood from one individual to another, has been practiced some in hospital work for this condition and in some cases has been of very great value. In general practice, however, it is very rarely if ever necessary, and we get almost the same results from infusion. I shall not, therefore, go into the technic of this procedure, but shall speak of medicinal treatment.

There has been not only loss of blood, but loss of heat as well. The body should therefore be wrapped in hot blankets and hot bottles placed around the patient with one over the heart. The only drugs indicated are those which will quiet the patient, sustain life, slow the heart, thus allowing it to become more nearly filled, and those which raise the blood pressure. I believe that morphine, grain 1-8, with digitalin, grain 1-40, will come as near meeting these requirements as any drugs we can use. Camphoric acid in a fatty oil and given hypodermically is also efficacious. Inhalations of ammonia may be tried, but should not be too strong as we may produce coughing and strangulation. This with absolute rest and quietude, and, as soon as patient can swallow, giving a spoonful of hot water by mouth every ten minutes, alternating every third time with hot broths, repeating the morphine and digitalis if necessary, complete my knowledge of the treatment.

EXOPHTHALMIC GOITRE.*

By WM. F. M. SOWERS, M. D., Washington, D. C.

The subject is such a large one that only a resumé can be attempted in a paper of this kind. It concerns both physician and surgeon, and the recent symposiums on the subject, both in this country and abroad, have considered it from both the medical and surgical aspects, and have urged a closer co-operation between physician and surgeon. This has likewise been done, with resulting improved treatment and mortality statistics in other diseases, especially appendicitis, gall-stones, typhoid perforation, etc. There are many points as to etiology, chemistry, physiology and pathology that are still undetermined.

The name "Exophthalmic Goitre" is perhaps less open to criticism now than a few years ago, when it was held that often the disease was present without thyroid enlargement. With a wider experience in the malady it is now generally conceded that a lack of thyroid enlargement is very rare. The exophthalmos often develops fairly late, but is a pretty constant symptom. This disease has been called after Parry (or Purcy), an Englishman, whose first observations were made in 1780, and published after his death in 1825. There are other earlier references, but Parry's was the first clear description. In 1835 Graves (an Irishman) published the next important report, and in 1840 Basedow (a German) gave a fuller description and more complete analysis of four cases. Some have advocated giving Graves' name to the disease, others (notably Charcot) have favored giving Basedow's name to it. Cachexia exophthalmique is an old name and has generally been supplanted by exophthalmic goitre in French and English literature. The early literature is, of course, chiefly valuable as a study of the clinical appearance and course of the disease. The goitre here was recognized as different from the more ordinary endemic variety, but its significance was not known. Other important names in connection with the more recent development of our knowledge of this disease are Marie, Chvostek, von Graefe, Stellwag, and Moebius, names for the most part used in connection with familiar symptoms.

Moebius in 1886 presented with clear arguments the "thyrogenic theory" of this disease.

*Read before the Medical and Surgical Society of the District of Columbia, at Washington, D. C., January 4, 1912. For discussion, see page 42.

The revelations of the thyroid functions, when the simple and adenomatous goitres began to be attacked surgically, are responsible for and gave credence to this theory. (Kocher 100 operations for goitre, 1883.) In many of the early operations for goitre the entire thyroid gland (or nearly so) was removed, with a resulting cachexia strumipriva. The similarity between this post-operative state to spontaneous myxoedema and cretinism (Referdin and Kocher) was duly noted. (The tetany and other symptoms, which we know now are due to loss of parathyroids, were not differentiated until later from the cachexia strumipriva.) Kocher showed, too, that a large portion of the gland could be removed in exophthalmic cases without the development of this cachexia. Moebius believed that exophthalmic goitre was an intoxication due to the morbid function of the thyroid gland, that there was not only a hypersecretion from the thyroid, but it was a pathological secretion; that normally the function of the thyroid secretion is probably to neutralize toxic substances produced elsewhere in the body. He considered that a pathological change in the thyroid is the basis of all cases of this disease, and recognized the fact that all forms of goitre may be combined with this condition. This "thyrogenic theory" is the basis of the modern conception of the disease, and many authors use the term hyperthyreosis to contrast the state with hypothyreosis (myxoedema), also thyreotoxicosis is used.

It is not an infrequent malady. Dr. Doch had 52 typical cases in 5,000 medical cases; Professor Kocher (Berne, Switzerland) to 1910 has operated upon 4,394 goitres, and of this number 469 were exophthalmic; Mayo has done 750 goitres, of these 300 were of this type. Most cases occur between ages of 16 and 40 years. It is eight to ten times more frequent in women than men. Heredity is not supposed to be an important factor. It is not infrequent in goiterous families. Oesterreicher reports a case where an hysterical mother had ten children, and eight of them developed exophthalmic goitre; of these one daughter had three children with the same affection. It is a disease rather of the cooler climates, about the Great Lakes in this country, and in certain parts of Switzerland and France where endemic goitre is very common, exophthalmic goitre is also found, but the "etiological bearing of climate and locality is

vague." Tonsillitis, sore-throat, or "colds," or some acute infection may precede the development of the disease, or if already present and abated, may be responsible for an exacerbation. Prolonged worry, hard work, and loss of sleep are supposed to have an etiological bearing. Many patients give a history of preceding neuroses, or an attack of nervous prostration. Fright has always been considered an important factor, and emotional shocks seem to have some bearing. It is generally found that there were pre-existing symptoms of the disease and it was precipitated by the shock. Dr. Doch sums up the etiology thus: "It seems most probable the causes are many and various. Perhaps the mechanism is not always the same. Sometimes there may be nervous stimulation of the thyroid gland, sometimes a stimulation by toxic, infectious, or metabolic substances. If, in addition to these variations of the process in the thyroid, we include reflex or chemical irritation of other glands, ductless, sexual, and others, and the varying influence of excretory poisons, we have no difficulty in explaining, theoretically, all the varieties of the disease."

The pathology has been an interesting study and its interpretation at times difficult. The thyroid is rarely extremely enlarged (except in cases with pre-existing goitres). The cut surface in the gross shows generally little colloid, and resembles rather in its color and consistency a cross-section of muscle. Generally the change is diffuse, the whole gland showing the same enlargement, or only slight differences in the size of the two lobes. Microscopically—to quote from MacCallum's description: "The alveoli are no longer rounded, full of colloid, and lined with low cubical epithelium, but are extremely irregular in size and form. The epithelium lining the alveoli becomes columnar. Diverticulae extend out from the sides of the alveoli and complicated epithelial projections grow into their lumens, which may thus be packed with epithelium at the expense of the colloid." The colloid varies greatly in different cases, but it seems that in most of the severe cases it is markedly diminished in amount; some cases, however, show a considerable amount of fairly normal looking colloid. Probably the amount of colloid present bears a fairly constant relation to the stage of progress of the disease, and to its severity. (Little colloid is found in the very active cases.) With

great over-growth of the epithelium degenerative changes and even desquamation may occur. In MacCallum's series where several operations were performed on the same patient with progressive improvement of symptoms, the tissue removed at the last operation showed a return to near the normal thyroid picture. The microscopic picture as described has been reproduced experimentally by Halsted. The compensatory hypertrophy which occurs in the remaining thyroid tissue after removal of one-half the thyroid gland in dogs, shows the same change from cuboidal to columnar epithelium, and the irregular alveoli with many epithelial projections into their lumens. This is an argument against Moebius' idea that in this disease there is not only a hypersecretion, but that the secretion is morbid, but favors the view accepted by many that the thyroid change is merely an hypertrophy of the secreting elements, brought about by stimuli of various kinds acting on the thyroid. Albert Kocher at the meeting of the A. M. A. in Atlantic City in 1907, laid great stress on the excessive vascularization that is found in conjunction with these signs of cellular hypertrophy and hypersecretion in all cases with true exophthalmic goitre, and called attention to the fact that such changes may be focal and walled off from surrounding gland and when no rich blood supply is nearby there are no symptoms of exophthalmic goitre. This explains the value of ligation of the thyroid vessels and the abatement of symptoms which follow. *Iodine* in organic combination is the essential element of the colloid found in thyroid glands. All observers agree that the amount of iodine in the thyroid in this disease is absolutely less than the amount present in the normal thyroid. In the severest cases, the gland has been found practically iodine-free. It has been shown that iodine is taken up with avidity by the thyroid gland in these patients and not eliminated by the kidneys as it is in normal individuals. In the cases where some colloid is found in the gland, the manufacture of the iodine product is in excess of its assimilation through the circulation, and a certain amount has been stored in the gland. These are generally the milder cases. On the other hand, where the iodine product is swept into the circulation as fast as formed, as is the case in the richly vascularized goitre, we find the severest symptoms of an

hyperthyreosis. The pathology of this disease is limited almost to the thyroid gland, in the early stages, but in the rapidly advancing cases, and in those that have persisted for some time, degenerative changes appear in various organs, notably the heart, kidneys, liver, pancreas and cortex cerebri, etc.

I will not go into the symptomatology except to enumerate the commoner symptoms: tachycardia, goitre, exophthalmos (and other eye-signs), tremor and general excitability, muscular weakness, various changes in skin, pigmentation and falling of hair, alimentary disturbances, vomiting and diarrhoea, glycosuria and signs of kidney degeneration, etc. Diseased conditions of other ductless glands coincident with the hypertrophied thyroid may have an unknown importance. Acromegaly has existed with exophthalmic goitre; also a close inter-relationship between the thyroid gland and the adrenal has been noted. Myxoedema may be a sequel rather than a complication, but sometimes seems to run parallel with hyperthyreosis for a time.

Clinical forms are variously named; primary exophthalmic goitre when no preceding goiterous enlargement, to contrast with secondary: then it may be either acute or chronic; again, according to number of symptoms, we have complete, incomplete, rudimentary or fruste, depending a good deal on the point of view of the observer and the accuracy of the observations. Stages of tolerance and stages of intolerance occur during the course. To quote again from Moebius: "As the Basedowian changes in the thyroid may be due to different causes and occur in different degrees, so all imaginable variations in course and severity may occur." "It may be difficult to draw a distinct line between this disease and health." Cases of neurasthenia (so-called) have been found to be really states of hyperthyroidism and benefited by proper treatment. I remember hearing said at one clinic where there was great interest in thyroid surgery, that the poor neurasthenic nowadays either lost his appendix or had a portion of his thyroid removed. Dr. Doch puts it well when he says: "The confusion of mild cases of Graves' disease with neurasthenia cannot withstand the complete physical examination and study that every suspected patient with neurasthenia should have."

A point in differential diagnosis has been called to attention by Prof. Kocher, rather in criticism of over-enthusiastic surgeons; in emphasizing the importance of distinguishing a physiological from a pathological hyperthyreosis, he says: "When a larger amount of thyroid secretion is needed by the healthy organism, as at puberty, in pregnancy, and in some diseases, hypertrophic swelling with hyperactivity of the gland means a useful physiological process and it is a great mistake to interfere by operation." He does not identify the term hyperthyreosis with Graves' disease (exophthalmic goitre). I have recently looked after a patient, a girl 16½ years old, with quite marked enlargement of the thyroid, the gland nearly uniformly enlarged, smooth and rather soft. There were associated slight signs of hyperthyroidism, pulse 90-100 and higher on exertion, 120, or excitement, nervousness and some hyperactivity of skin and sweat glands, and of vaso-motor system. There were no eye symptoms, no tremor, and no alimentary-tract symptoms. It was called a case of a "potential Graves disease." She was kept quiet, but allowed to attend classes in a Washington school and given thyroid proteid with syrup iodide of iron, in increasing doses. Within a few months her symptoms increased slightly, then with decrease of the drugs they gradually disappeared until within a year there was a return to about normal.

As a diagnostic aid Kocher's recent work on the blood-findings should be mentioned. He finds that in this disease the total number of leucocytes are low or about normal, but there is a relative increase in the number of lymphocytes and a decreased percentage of polymorphonuclears. This fact he considers due to the stimulating or irritating action of the thyroid secretion on the lymphoid tissues of the body, and its toxic action on the bone marrow (whence the polynuclears arise). He suggests that these blood changes may explain why an ordinary, even slight infection or intoxication, acts so badly on a patient with Graves' disease; because ordinary leucocytosis cannot get so far or substitute lymphocytosis. Thus a patient's condition may be very bad with a slight infection, or the symptoms of exophthalmic goitre may increase often to a dangerous extent. It is possible to gauge a patient's improvement by the behavior of the lymphocytes relative to the polynuclears in the circulating blood.

Treatment may be divided into medical, organotherapy and surgical. There is no specifically curative drug. Iodine has a definite and dangerous effect. Dr. Robert B. Preble of Chicago, after reviewing all the drugs that have been used with benefit, arsenic, bromides, belladonna, hydrobromate of quinine, and others, concludes that no one of them has any direct influence on the progress of the disease and that their beneficial influence is determined solely by the skill and intelligence with which their use is adapted to each particular case. Kocher advocates the use of trypsin for the alimentary glycosuria, and the diarrhoea, believing that these symptoms are due to pancreatic degenerative changes. *Rest*, mental and physical, is a most effective remedy. The use of the icebag on the gland and over the heart, regulation of diet with relation to the digestive powers of each case, proper elimination, general hygiene, baths, massage and electricity all are important aids (if the patient can afford them.) Suggestion may be very useful. Moebius is quoted as saying that "anything is of value providing only that the patient is led to think that it is."

Exposure of the thyroid to the X-Ray has often been beneficial. Injections into the thyroid of various irritants with the idea of destroying portions of the hypertrophied gland is condemned by the best authorities. I recently heard hot water recommended for injection into the gland.

Organotherapy.—This includes the extracts from various glands having an internal secretion, from the thymus, adrenals, ovaries, testicles, and thyroid. They are all practically inert except the thyroid extract which is definitely harmful in this disease. More important are those preparations whose action is anti-toxic or cytotoxic. One group of these are made from animals which have had their thyroids more or less completely removed, also the serum from patients with myxoedema has been used. Milk, either liquid or desiccated, from thyroidectomized animals, also desiccated blood: called antithyroidin, or thyroidectin. All are of little value. A second group includes the interesting work of Rogers and Beebe in New York. They prepared pure proteids, globulin, and nucleo-proteid from thyroids removed at operation and at autopsy of cases of exophthalmic goitre; and later in their work from normal human thyroids. These substances were inocu-

lated intraperitoneally into rabbits and sheep for varying periods and the serum of these animals was used for therapeutic purposes. Such a serum will have a neutralizing effect on the excessive thyroid secretion and will act on the thyroid gland itself. This of course is an ideal form of treatment and the authors are enthusiastic. They report 20-25 per cent. cured, 30-40 per cent. improved markedly, 30 per cent. though improved are still invalids and 10 per cent. not benefited. Unfortunately the serum is difficult to obtain and these results are not constant. I have seen several cases improve under its use, but have recently tried it on a case with no apparent effect. Sir Hector MacKenzie, in the symposium on exophthalmic goitre before the British Medical Association, 1910, gave results of cases treated by *non-operative* methods: there were 36 per cent. recovered completely or nearly so, and about 25 per cent. terminated fatally.

Surgery though not as ideal a form of therapy as giving a specifically curative drug or antitoxin, has certainly given by far the best results in this disease. The operations are ligation of one or more thyroid arteries, excision of a lobe, or a lobe and the isthmus. In advanced or complicated cases the simpler ligations are done first and this may be followed later by excision of portion of the gland. The excision itself may be done in several sittings as has been described recently by Dr. Tinker of Cornell. Repeated operations are done on the same patient if necessary, until the secretion is reduced to the normal amount. Operations on the sympathetic nerves have been given up. Both local and general anaesthesia have been used, the latter is the favorite in America. In the early uncomplicated cases the operative technique is no longer difficult, both Kocher abroad and Mayo here being more responsible perhaps than others, for its simplification. In Kocher's 496 (1910) operated cases of Graves' disease, the total mortality is 3.4 per cent.; in his first group 176 cases (his first 1,000 goitres) the mortality was 5 per cent: in his second group, 155 cases it was 2.5 per cent. and in his last 72 cases it is 1.3 per cent. Dr. C. H. Mayo recently stated that their mortality is about 2 per cent. and that these deaths were all in their very ill, far advanced cases. The same lowering of the death rate holds in most of the published statistics. This improvement in surgical treat-

ment is of course due in part to better manual dexterity, but much more to the fact that cases are brought for operation earlier, before extensive heart and kidney changes, etc., have occurred, and also because the larger operations are not attempted on the advanced cases until the condition is improved and made safer by ligation of one or more thyroid arteries and the use of the various medical remedies (and perhaps organotherapy.) The operative risk (according to Kocher) is in cases where there has been long-standing and continuous poisoning of the system with thyroid secretion and so organic changes in heart, muscles, kidneys, liver, pancreas and cells of cortex cerebri have occurred. He considers the greatest risk is when the exophthalmic goitre is combined with a status lymphaticus (enlarged thymus, lymph nodes, and spleen). Patients should always be examined with this in mind because the other risks enumerated generally appear later in the disease, while this complication may appear early. Kocher says there is not a single patient of his that has not been benefited by operation; and that this is the only way to secure for them real mental quietness. He has cured 85 per cent. of all his cases, early, late, favorable and unfavorable, primary or combined with other forms of goitre: and has cured practically 100 per cent. of the early vascular goitres. Some of the cases reach back 15 to 17 years without recurring provided the operations were carried so far that the vascular symptoms of the thyroid disappeared completely. No symptoms of exophthalmic goitre remain in his cured cases, but the time of complete cure varies greatly, the heart symptoms many persist sometime and the exophthalmos. The chances of cure do not so much depend on the degree and extent of the histological changes in the thyroid, as on the duration of the disease and the secondary changes in the patient. Other operators have had results almost as good as Kocher's. C. H. Mayo has recently done his 180th case without a death, and his cases are cured by persisting in shutting off blood supply, and in excision of gland tissue. I might quote numerous other statistics, Dr. Halsted's, Dr. Crile's, etc., they all show the value of operation and the increasing safety of modern surgical methods of attacking this disease. Both Dr. Barker of Baltimore, and Dr. Preble of Chicago, speaking from the medical standpoint, in the symposium before the A. M. A., empha-

size the importance of early operation, and the permanency of the cure of early operative cases. Dr. Preble says that medical treatment should be employed in every case until it is seen that in spite of intelligent effort along these lines the patient is not improving or steadily getting worse. "It is better to operate earlier than to delay too long."

1707 Massachusetts Avenue, N. W.

A PLEA FOR BETTER CLINICAL OBSTETRICAL TEACHING.*

By J. L. RAWLS M. D., Norfolk, Va.

When Dr. Lankford asked me to prepare a paper on the diseases of children or obstetrics, its very latitude left me at a loss for a subject. At last, however, I decided to make a plea for better clinical obstetrical training by giving my own obstetrical preparations, not that my own individual experience can amount to much, but simply because it is a type of the teaching imparted to students in the State of Virginia.

Perhaps I was somewhat unfortunate in taking my obstetrical course; because of certain discouraging circumstances in connection with it, I did not make of it as much as I might have done. At any rate, when I received my diploma I had heard a very irregular series of lectures, had attended the usual number of quizzes, and had seen an instructor deliver a doll-baby or a manikin through all the various evolutions of normal and abnormal labor. It may have been my obtuseness, but I certainly did not get very much information as to the conduction of a normal case of labor from seeing a perspiring instructor begging a headless, armless, legless manikin to "bear down" during her pains. In addition, during the closing days of the examinations another student and I delivered one normal case of labor, and our acquiring of that was purely accidental.

My obstetrical training was not different from that of other members of my class. Some two or three did deliver quite a number of women during their four years course, but these were men who had been in Richmond several years, who knew every nook and corner in it and who hired old women to get obstetrical cases for them, and possibly in some cases planted the seed for their own obstetrical harvest. Certain it is that at

*Read before the Section on Diseases of Children of the Norfolk County Medical Society, at the March, 1912 meeting, held at Norfolk, Va. For discussion, see page 44.

that time the college authorities made no provision for us. The University College of Medicine did attempt to provide some clinical obstetrical training by establishing two stations in different sections of the city where two senior students spent two weeks at a time and answered all calls that were turned in. One student might have a half dozen cases while the next might have no calls. It is hardly to be supposed that the material for clinical teaching in Charlottesville is as abundant as it is in Richmond.

After leaving college I spent a year in a private general hospital. There I gave an anæsthetic for a high forceps delivery in which the baby was lost, and another for a normal labor. I delivered one normal case outside that sent to the hospital in an emergency for a physician. With this added experience I applied for a license to practice medicine in Virginia and received it and I was absolutely at a loss what to do next. I know that I should actually have taken a course at some good lying-in institution, but like the majority of my student acquaintances I was about at the end of my rope. I had spent seven years at academic and medical colleges and a year in hospitals, and I knew about as much about obstetrics from actual experience as I did when I started. I did not feel like refusing to take obstetrical work because I had to make a living out of the practice of medicine, and besides I knew I was fully as well prepared as seventy-five per cent. of the students who are turned loose on an unsuspecting public. I felt that I was as well prepared in fact as a physician, whom I heard of recently who has enjoyed a large obstetric practice for several years, who attempted to deliver a breech with his patient in the middle of a feather bed and wondered why his baby died before he could extract the head. On another occasion he attempted to apply forceps with his patient in the same position as he leaned over the foot of the bed.

Nor did I feel like going to some older physician and asking him to allow me to be an attendant at his confinement cases, for a woman usually selects her obstetric attendant for some personal reason, and it is not a performance to which she wishes the general public invited.

I felt very much like the man who had picked up his knowledge of medicine without the aid of preceptors or books and who went to his first confinement case in wonder and in dread; there he saw the rupture of the bag of waters and

received his first baptism of amniotic fluid. He watched with awe the spontaneous delivery of the child, and while he stood wondering what the cord might be, and to what it was attached, he saw with absolute horror the expulsion of the placenta. Rushing out he told the awaiting father that the baby was alive and well, but that the mother must necessarily die, for, he said, first the bladder burst, and while she might have gotten over that, the baby had grown tight to her liver, and the whole liver had come away.

I heard of a very recent college graduate who tied off the cord and cut between his ligature and the baby. Perhaps one of the members of our own society will recall the time he begged the distracted husband to go and get a sure enough doctor as he wasn't a doctor anyway.

Prof. Williams, of the Hopkins, recently sent out a set of questions to the professors of obstetrics in the one hundred and twenty colleges of the United States requiring a four years' course. Forty-three answered; of the seventy-seven not answering, it is but fair to suppose that some at least did not answer because they could not conscientiously do so to their own satisfaction. Question 9 asked what was your preparation for teaching? Twenty-one of the forty-three had served for varying lengths of time in some lying-in hospital. Eleven obtained their experience solely from the indefinite number of cases in private practice. Five had seen less than one hundred cases; fifteen less than five hundred. One professor had never seen a normal delivery before assuming his professorship. The men who have stimulated me with the desire to dig deepest at the roots of the tree of knowledge have not been always the men who had at their finger's end the knowledge of books and the statistics of other men's work, but they have been men who themselves have watched the look of unutterable awe and terror in the young girl's eyes that heralds the approach of her dawning motherhood. I cannot conceive how a man who would accept a professorship of obstetrics in any recognized college without first having seen one normal case of labor could stimulate in me a desire for anything except the veriest rudiments of his art.

Question XI asked, Is there a lying-in hospital connected with your school? Six schools had no such connection.

Question XII was, Do you maintain an out-door obstetrical service? Five had none; six had

small services without data as to the number of patients; sixteen had less than two hundred and fifty deliveries, six with between two hundred and fifty and five hundred, five with between five hundred and one thousand, and five with one thousand and over per year.

Question XIX asked, Do you consider the ordinary graduate from your school competent to practice obstetrics? Eleven answered no; the affirmative answers were nearly all of them qualified. Dr. Williams says the more positive the answer the poorer the school and the smaller the clinical material. He further states that after eighteen years of teaching probably the best body of the Johns Hopkins Medical School he would unhesitatingly state that his own students are unfit on graduation to practice obstetrics in its broad sense, and are scarcely prepared to handle normal cases of labor.

To my mind, this cannot be the fault of the student body, for it is hardly conceivable that none of the medical students in the United States could be taught to handle normal cases of labor. The fault then must lie with the method of teaching and that fault must extend throughout all the breadth and length of the land. Dr. Williams further says that there is only one school that has an ideal obstetrical clinic. Another question asked if as many women did not die as the result of ignorance or ill-judged and improperly performed operations in the hands of the general practitioner as from infection from the hands of mid-wives, and was answered in the affirmative.

As a remedy for this deplorable condition, he advocates, among other things, a reduction in the number of the medical schools, with better facilities for those remaining and higher requirements for admission. I have been in favor for sometime of only one medical school in the State of Virginia, allowing the first two years in Charlottesville in order that a man might combine if he wished the last year of his academic training with the first year of his medical course; then take the last two years in Richmond where the clinical material is much more abundant than it can possibly be in Charlottesville.

Dr. Williams also urges the recognition by medical faculties and hospitals that obstetrics is one of the fundamental branches of medicine and that the obstetrician should be not merely a

man mid-wife, but a scientifically trained man with a broad grasp of his subject.

He insists that the State examining boards shall require every applicant who is licensed to practice medicine to submit a statement certifying that he has seen delivered and has personally examined under appropriate clinical conditions at least ten women.

During the five or six years I have been in private practice, I have had occasion to deliver ninety-five cases of my own and have assisted in the delivery of about fifty cases of dystocia. I recently heard a member of the Society state that he would not take a case of confinement unless a trained nurse was in attendance; it seems to have fallen to my lot to deliver more than my just proportion—for, in this series of one hundred and fifty cases, in only three was there a trained nurse. In two of these cases—of eclampsia—the nurse was called in after the delivery had been effected. In a large number of the cases I have had to depend entirely upon the kind ministrations of the neighboring woman, and in two that I recall there was not a living soul in the house except the woman in labor and myself.

In the series of ninety-five cases of my own, there was one maternal death, that occurring in a very stout woman with hemophilia eleven days after delivery, hardly a condition that could be attributed to her lying-in,* since there was no indication of infection. No baby in the series was lost when the labor terminated normally at the end of nine months. Six babies delivered prematurely from one cause or another were lost. There was no case of sepsis in the lot, and when we consider the surroundings, frequently not even a bowl in which to wash my hands—I think I have been fortunate. There were several cases of sapræmia but all of these responded promptly to sitting the patient up in bed in order to secure better drainage, together with the use of remedies such as ergot, quinine and strychnine. In no case was a douch used. In one case I found the patient on her hands and knees on the floor with the head delivered and the shoulder caught behind the symphysis. The woman was put in bed on her back, and the baby dropped down on the perineum and delivery was effected without further trouble. I delivered one woman of viable children twice within twelve months and both children were dead within the year. There were three breach deliveries, one

transverse, two occipito-posterior, both of the latter having to be delivered with instruments. The others were either right or left O. A.

I had rather a peculiar accident with my first breach delivery. Before I noticed it the baby came down with the knee flexed, the sole of the foot resting behind the promontory of the sacrum and the flexed knee caught behind the symphysis. I had ten minutes of about as hard work as I have ever undertaken to free the jam that resulted.

There have been two cases of accidental hemorrhage from detached placenta, one at 6 1-2 months in which the baby was naturally lost; the other at 8 1-2 months in which the vagina was packed until full and the baby was saved.

There have been thirty-six primipara, as against fifty-nine multipara. As to tears, twenty-three have required a repair of the perineum; the first was my first instrumental delivery, which was effected in a hovel of a home at 4 A. M., with a little smoky oil lamp for a light, without assistance. If I had it to do over again, I do not think I would get a complete tear. The other case was a sixteen-year-old feeble-minded girl who had been in labor a week when I saw her first. There have been only thirteen instrumental deliveries out of the number. There were six cases of eclampsia; of those the three labors delivered prematurely were lost, and in the other three in which the convulsions came on after labor had begun, none of the cases were lost. In every case the women were delivered immediately by rapid dilatation and either by version or with instruments. In no case was the mother lost.

I had hoped to go into the fifty or more cases that I have seen with other physicians, since they are the most interesting of the lot, including, as they do, cases of eclampsia, occipito-posterior, placenta prævia and uterine inertias. In none of these cases was there a maternal death, and in but two did we lose a child.

Miss Clara Barton,

One of the founders of the American Red Cross Society, died at her home in Glen Echo, Md., April 12, aged ninety-one years, and was buried in Oxford, Mass., the place of her birth. She had long been in failing health, and the end was not unexpected. The most fitting tribute that could be paid her is that she was known the world over as "an angel of mercy."

Proceedings of Societies, Etc.

MEDICAL AND SURGICAL SOCIETY OF THE DISTRICT OF COLUMBIA.*

Reported by JOHN DUNLOP, M. D.

Pemphigus Foliacus.

Dr. Hazen reported a case of pemphigus foliacus in a negro. He obtained a pure culture of bacillus pyocyaneus from the blebs during life, and at autopsy from all of the organs.

Dr. Sowers read a paper on—

Resume of Exophthalmic Goitre.*

DISCUSSION.

Dr. J. D. Morgan said the essayist had given a fair rating to both medicine and surgery. All cases come to the hands of the medical man first. Ninety per cent. show heart symptoms first and at that time, if the internist gets hold of them and insists on proper treatment, he can cure them. Rest and freedom from worry—away from home—rapidly benefit. Cases that have gone on with definite symptoms are hard to improve in any way. Those cases which have existed for sometime should probably be turned over to the surgeon. Medical treatment should be tried in early and in somewhat late cases before operation. The treatment of thyroid cases is rest in bed, treatment of the gastro-intestinal condition, and no worry. The early cases can be confounded with neurasthenia in a hurried examination, especially at that time of life when a woman easily breaks down, and both conditions are relieved by rest. In reference to Kocher's eighty-five per cent. cured, it is doubtful if all are cured who have developed heart symptoms. Some few things have given help. the X-Ray, aromatic sulphuric acid, syrup of iodide of iron.

Dr. Hickling considers that exophthalmic goitre is after all a neurosis affecting mainly the thyroid gland. While the symptoms are due to the perverted action of the thyroid, the causative factor must be looked for in the nervous system, as irritation of the thoracic sympathetic will produce the major symptoms of this condition; also section of the restiform body in the medulla gives similar symptoms. He thinks the prevention and cure of this condition in the future will be along neurological lines. An early diagnosis is most important in

*Meeting of January 4, 1912. See paper on page 35.

all cases, and should be suspected when tachycardia is found. The enlarged thyroid may be absent, as well as Von Graefe's sign; this latter may be found in other diseases and sometimes in healthy persons. The important symptoms of the disturbed mental condition, motor weakness, tremor and increased electrical excitability due to hyperidrosis, should never be overlooked. The mentality of the patient, which is probably a toxic psychosis, is typically a fear psychosis; he is excitable, irritable, flurried, restless, confused and forgetful. When one of the fundamental psychoses accompany this condition, the prognosis is bad. Phosphate of soda is mentioned by Kocher as of use. I have also found benefit from the aromatic sulphuric acid. The galvanic current will sometimes reduce the pulse for a few hours and sometimes for a day. All should be tried before operating. Partial thyroidectomy is certainly the operation of choice. After operation many of the cases still have mental and heart symptoms and there is still something to be looked for along neurological lines.

Dr. Bishop said surgery had made a great showing, and deserved much. Yet there is always an element of great danger to the patient in these operations. The only case he had had operated upon died on the table. Then again the patients do not always do as well after operation, as the reports of some cases would suggest. Therefore, other methods should be fully tested before an operation is suggested.

Medical treatment has been tried and found useless as a curative measure. Of the serum treatment, he said he knew little. The cause of the disease seems as yet to be unknown.

The pathologic findings would indicate that some physical measure or measures should be used that would lessen the activity of the hyperplastic cells, diminish the secretion of colloid, regulate the circulation in the gland and quiet the action of the heart. Electricity acts in several ways to accomplish this, and, while not always successful, the degree of success when the safety of the measure is considered should suggest that it be not neglected. The treatment of exophthalmic goitre is reduced to electricity and surgery. He had seen the tumultuous action of the heart reduced to quite an orderly condition within ten minutes by the application of the continuous current—the pos-

itive dispersing electrode at the back of the neck and two concentrating small negative electrodes applied to the pneumogastriacs, one on each side of the neck. This relief often lasts twenty-four hours, when it may be repeated with perfect safety. Enough current is used to stimulate the inhibitory action of the nerves, usually from ten to fifteen milliamperes, often for half hour at a time. We may get some electrolytic action, but little of this action can be expected from so little current, especially when there is so much colloid substance, as this latter is non-conducting to the electric current.

Dr. Bishop recalled the case of a patient who came to him ten years ago with thyroid quite prominent, with complexion, heart action, and nervous symptoms, prominence of the eyes, etc., indicating a well-developed case of exophthalmic goitre. She had been unable for several months to fill her position as clerk in one of the departments. She has done so successfully now for about nine and a half years. Her pulse at present is steady, but rarely gets below eighty. All other symptoms have disappeared.

The X-Ray seems to act on these cases by destroying the function of the abnormally enlarged cells, and by producing degeneration and absorption of abnormal tissue. There is reason to believe that its action upon colloid here is as active as upon any other degenerate tissue.

The static current, when applied bi-polar, by constricting the gland and alternately relaxing it, reduces hyperemia. It likewise stimulates the ionic action of the tissues themselves, stimulates the activity of white blood cells, and encourages phagocytosis. The pneumogastriacs are also stimulated and their inhibitory action on the heart kept up. He has often thought that the action on the pneumogastriacs, produced a favorable effect upon the gland.

Therefore, to get the best results from electricity in these as in all other cases, we must take time and use the utmost care in the use of the continuous current, the X-Ray and the double spark gap, static current.

Dr. Sowers, in closing, said it seems to him that a serum will be the ideal form of treatment. A simple operation will give wonderful results in a short time. The eighty-five per cent cures of Kocher do not include the moribund cases, and he thinks this is the secret of his success. Big risks are not taken. Post-

operative condition of patients shows such improvement that the patients will try to get their friends to have an early operation. He has only seen two cases in the negro.

NORFOLK COUNTY MEDICAL SOCIETY— SECTION ON DISEASES OF CHILDREN.

Reported by FRANK H. HANCOCK, M. D.

The subject for discussion for the March, 1912 meeting, Dr. Burnley Lankford, Chairman, presiding, was the paper* by Dr. Rawls on

A Plea for Better Clinical Obstetrical Teaching.

DISCUSSION.

Dr. George T. Myers, attending physician, Florence Crittenden Home, Norfolk, Va., discussing this subject said that it was the hope of obstetricians throughout this country that the paper of Whitridge Williams in a January number of the Journal A. M. A. would serve, as the author intended it to do, to awaken the medical colleges of the United States to the gross and nearly criminal negligence with which they have heretofore treated their obstetric departments. He said he had always thought that mid-wives and the back rooms of drug-stores were the two things that sanitation had passed by in its march forward, but it seems that by the side of the ignorant doctor the midwife may be said to be innocuous. She usually only brings about puerperal infection to the mother, or tetanus to the child from dirty manipulation of the cord, whereas the doctor, having unlimited possibilities, permits and inflicts morbidities that are incalculable both in extent and in number.

Certainly it seems useless to agitate ourselves longer about the pestiferous midwife, or to seek to legislate her out of existence, when we are confronted by such evidence of inferior service as is shown in the Walliams article, or as has been generously and candidly admitted and deplored by the essayist of the evening in his very engaging paper. That medical faculties could have gone on from year to year so genuinely ignoring this department of medicine, argues for them certainly a strange inaccessibility to ideas, and a listlessness to the vicissitudes of obstetric work, that is assuredly in need of immediate correction. Williams must have convinced the Committee on Midwifery of the Association for the Study and Prevention of Infant Mortality,

before whom he read his paper, that the real attack of that reform should be made upon the medical colleges of this country, who so miserably teach obstetrics.

The replies to his questions received from various parts of this country showed not only the startling lack of clinical teaching or bedside experience given the obstetric student, but also a *woful lack of training of the professors themselves*, and a failure on their part to understand the obligations of a professorship. More than one-third of the forty-three professors replying had large general practices; how could they become versed in the finer problems of obstetrics while devoting their time to the claims of private work? It is interesting to read that of forty-one answering the question as to why they "took up obstetrics," only eight deliberately chose obstetrics as their life work; the rest came in by fortuitous circumstance, or in a few cases through a mild interest, and a milder knowledge, very likely, of their duties. Less than half of them had ever served in a lying-in hospital, which is depressing when we remember that France and Germany make as a first requirement to a professional career, a long period of preparation in a well-equipped lying-in hospital, with an abundance of clinical material.

One became professor of obstetrics before ever attending or seeing a delivery; five had seen less than one hundred cases of labor, and thirteen less than five hundred. Naturally you cannot teach what you do not know, and so we have spreading over this country an increasing number of young graduates whose training in obstetrics is limited to a series of didactic lectures illustrated by means of a headless manikin, as Dr. Rawls says, without a modicum of that experience which is so essential to the attainment of obstetrical knowledge. Take the case of my friend here who sometimes essays to report these meetings; attending a case of confinement in the early years of his work, he attempted to detach the vaginal part of the uterus, the elongated and hypertrophied cervix, thinking that his hand had grasped a second placenta, nature having kindly delivered the first and only one, along with the child, without the necessity of this obstetrician's intervention. The nature of the mistake he had made dawned on him in the course of a few years thereafter. Let us hope that age and experience have added something to his information.

*For paper, see page 39.

Nobody should attempt to learn obstetrics outside of a lying-in hospital. Of the forty-three schools responding to Williams' questions, only nine had anything like adequate clinical material for the instruction of their students. Each of ten of the smaller lying-in hospitals had from twenty-five to one hundred and twenty-five deliveries a year, or a total of five hundred and fifty-three cases, for the instruction of five hundred and seventy-five students, and as a number of those occurred in the Summer months when the students were away, the actual number seen is appallingly small.

A professor of obstetrics should be able to cope with all complications arising from the female generative tract, and to do that he must be a trained gynecologist as well; then he will be afforded the facilities for the prosecution of his work that have always been given the gynecologist but never the obstetrician, where so many of the gynecological conditions arise. Inanity has still a great deal to do with medical education.

Considering for a moment the perplexing conditions of placenta prævia, Dr. Myers said that it was too intricate a question to be gone into in a general discussion of this sort, that it required individual consideration, and often the keenest discrimination of a ripened obstetrical judgment.

External pelvimetry is an important source of information in all primigravidæ. By it we get the diameters between the anterior superior spines, between the iliac crests, the great trochanters, and the external conjugate—distance between the spine of the last lumbar vertebra behind and the symphysis pubis in front.

Internal pelvic examination is, of course, imperative; and by it we seek to confirm the external findings, to establish the obstetric diagnosis, to ascertain the condition of the soft parts as to congenital defects or pathological growths, and to estimate the size of the pelvis.

The educated hand is the best instrument for internal pelvimetry; by it we tell the general shape and capacity of the pelvis, the shape and curve of the sacrum, the inclination and thickness of the symphysis pubis, and, finally, the great diameters. Recently, in examining a woman at the Florence Crittenden Home, Dr. Myers suspected a deformed pelvis from the lessened size of these diameters, and the disproportion between the head of the child and the

pelvic outlet. He waited until labor set in and did a Cæsarean section, disclosing a deformed pelvis through which the head could never have passed. A short time ago the speaker was called in to see a woman who had been in labor twenty hours. Internal and external pelvic measurements disclosed a somewhat contracted pelvis, and an immediate Cæsarean was done. Biparietal measurement of the child's head later showed it to be greater than the diameters of the pelvic outlet, and of course labor could not have been completed.

Dr. Charles A. Saunders related that he began the practice of medicine in 1899 and had attended from that time to the present three hundred and twenty-five cases of labor; of these one hundred and five were primiparæ. In only eleven cases had he used forceps. There were fifteen second degree tears, and one complete laceration; two post-mortem hemorrhages; no cases of eclampsia or ophthalmia, and no puerperal infection.

Three children were still-born, for causes not ascertained, and there were six sets of twins in the series.

Of these three hundred and twenty-five cases, only five of them were delivered in hospitals. There was one abscess of breast occurring six weeks after delivery.

Dr. Saunders stated that it has been his routine practice to use chloroform freely, that he firmly believes it assists in the conservation of the structures of the parturient canal through which the head is bursting by relaxing the muscles which the woman unconsciously contracts in the lightening pains of the moment. At any rate, he said, these were his ideas and he believed it had been a factor in the small percentage of his lacerations. As far as he has been able to ascertain, none of his patients had sought the aid of a gynecologist subsequent to their lying-in nor needed operative treatment save, of course, the case of the complete tear. As a routine, he uses chloroform and ergot, with the usual antiseptic precautions, Kelly pad, etc.

Dr. Saunders has never used douches or breast binders, "notwithstanding all that description Dr. Herbert Old used to puzzle us with, and talk so much about, an intricate and devious mechanism with which he slung the breasts of his parturients."

Camphorated oil, glycerine, belladonna, and other favorite voodoo salves of the midwife had

not been part of his armament in dealing with irritated breasts. Rest and occasional doses of codeine for pain comprised the treatment given.

The average length of time these three hundred and twenty-five women were in labor was seven hours, the extremes being two hours, and seventeen hours, respectively.

One mother died apparently from embolism on the twelfth day after confinement. In only three instances did he insert his hand inside the uterus.

Dwelling briefly upon the management of normal labor, Dr. Saunders said it might be summed up in the fine words of Edgar, "Watchful observation." This would teach the attendant not to see *how much* he could interfere but *how little*, and would do away with a good deal of meddlesomeness that has characterized the anxious accoucheur.

It has been stated, and too much attention cannot be drawn to it, that the greater proportion of the morbidity, if not the mortality of childbirth, is due to the careless and unskilful management of normal labor. If there are positive indications for interference, the obstetrician must be able to swing readily from a position of watchful expectancy to one of active interference. His attitude must never be a blind, unreasoning trust, because nature in no department of her activities is infallible, and sometimes needs careful directing, and even coercing.

It is interesting to note the safeguards nature has provided against infection, as the child slips along the parturient canal, out of the sterile uterus, past the aseptic cervix, and into the vagina; not entirely clean indeed, but rendered practically so by the great increase of vaginal mucus, having very likely some feeble germicidal power of its own, and then from the flushing it gets from within outward by the aseptic, saline, liquor amnii, a cleansing process which is completed by the outward passage of the placental mass and the subsequent flow of blood.

Discussing obstetrical bags, Dr. Saunders thought that notwithstanding its greater weight and cost, the aseptic metal obstetric case, carried in a leather holder, weighing altogether not more than twenty-five pounds, would soon be in universal use. The ordinary leather bag into which all obstetric implements were loosely thrown and carried from house to house is really inexcusable in these days of ideal asepsis.

Dr. P. St. L. Moncure, discussing some non-

pregnant enlargements of the uterus and pelvic organs, said that hematometra, usually due to retained menses, is a rare condition, and while there are such entities as pyometra, physometra and hydrometra, due to atresia, acquired or congenital, they are too rare for extended consideration this evening.

The importance of accurate diagnosis in cases of suspected pregnancy is very apparent. There is nothing so hard to live down in a physician's experience as a mistake in this department of medicine. Probably no situation a physician faces is fraught with such tremendous consequences to himself and patient, and he should be able to skilfully group the symptoms in the order of their importance, and to be familiar with all the methods of examination that help to solve those obscure cases which require a skilled hand and eye, and a discriminating judgment. The careers of some eminent specialists have been exemplified by striking errors.

Obstetricians and surgeons, as they advance in experience, realize the value of and depend more and more largely upon the *softening and compressibility of the lower uterine third*, known as Hegar's Sign. There is an alteration in the shape, and, likewise, in the consistency of the region of the uterus just above the cervix, the progressive softening having begun in the cervix.

Goodell strikingly illustrated this sign by founding the rule that when the cervix is as hard as the tip of one's nose, pregnancy presumably does not exist; but if it be as soft as one's lips, pregnancy is probable. This softening process was recognized as a distinctive sign quite independently by several other observers. Hunter McGuire taught it for years to his classes in Richmond. I am told.

Many discoveries in medicine have the same history, and in science, too, for that matter. In 1818, Mayer of Geneva put his ear to the abdomen of a pregnant woman and heard for the first time the foetal heart sounds. Then years later, Kergaradec of Lousanne, ignorant of the discovery of Mayer, announced the same fact.

But what I intended to discuss were some complications of fibroids, and to report an interesting case I saw sometime ago.

A woman came to me in her fifth month of pregnancy with a history of a craniotomy operation performed at a previous labor. The nature of the obstruction was not diagnosed at the

time of this intervention. A careful examination enabled me to diagnose a tumor of some sort, arising from the neighborhood of the left broad ligament, and wedging itself down into the pelvis between the uterus and the rectum. Upon opening the abdomen a few days later, it was discovered that the tumor was a fibroid of the left ovary, which had dropped down into the cul-de-sac and was slowly developing there. It was removed, and pregnancy proceeded uninterruptedly to a normal labor and the birth of a normal child.

It is unnecessary, of course, to remind this Section that the failure of the attending physicians to discover the nature of the obstruction in the first instance, or even that there was obstruction sufficient to prevent the passage of the child through the birth canal, was what brought about the lengthy labor and the destruction of the child.

Section adjourned.

Analyses, Selections, Etc.

Strains and Dislocations of the Sacroiliac Joints.

E. S. Hatch, New Orleans, says that a very slight amount of mobility in these joints beyond the normal range may cause much pain which is due to the fact that the lower lumbar and upper sacral nerve roots forming the lumbar and sacral plexuses lie over the anterior aspects of these joints. The pain, therefore, usually runs down the great sciatic nerve and occasionally is felt well down the leg. Dr. Dunlop has spoken of the fact that in his cases he has been struck with the various types of referred pain, and he says that "the irritation of the obturator and the accessory obturator would account for the pain referred to the hip-joint; the accessory obturator, which is found in one out of every three bodies, would also account for the pain sometimes found over the appendix region."

As to the etiology, Hatch mentions (1) parturition, especially a hard labor, producing traumatism; (2) menstruation, the pelvic organs being engorged tending to stretch the ligaments; (3) traumatism, which accounts for the majority of cases, *e. g.*, suddenly lifting a heavy body, or doing so slowly and through a length of time, thus slowly stretching the ligaments; a fall, producing rupture of the ligaments; (4) after

a long illness with recumbency, the muscles and ligaments having become weakened, the lumbar curve lost, and the upper part of the sacrum tilting backward; (5) post-operative, the rationale being the same as in (4).

The pain may be a dull ache or very severe; is found in the lower part of the back near the articulation, in severe cases following the course of the sciatic nerve down the leg. The normal motions of the spine are limited, and in those much affected, the patient stands with a slight list away from the diseased side and with the knees somewhat flexed. Tenderness is usually found over the joints.

By grasping the crests of the ilia with both hands, the thumbs resting on the sacrum, it is sometimes possible to feel the movements of the bones when the patient flexes and extends the legs. One of the most important diagnostic points is the production of pain upon raising the extended leg. Sometimes, it is possible to raise the leg but little; in mild cases, however, pain is not produced until it has been lifted a good deal. In unilateral strain, pain is caused in the affected joint when the opposite limb is raised. Neither rotation, abduction or adduction causes discomfort, nor does raising the leg when flexed at the knee.

The condition must be diagnosed from tubercular spine, sciatica, lumbago and chronic rheumatism (so-called). While it is easy to make the diagnosis in a patient who has a deformed position of the lower spine, a limp, and who cannot recover his balance when rising from a stooping position, it is often harder to make the diagnosis in a mild case. There is no tenderness over the sciatic nerve as in true sciatica.

The patient should be stripped for examination, all peculiarities of the spine being noted. Then, without bending of the knees, the patient is made to bend forward. In all cases the amount is limited, in some impossible. Lateral bendings also are limited, but performed with less pain toward the affected side. The test for joint motion is made as previously described, and, finally, that with leg extended.

Tubercular, hypertrophic, atrophic or infectious arthritis can be diagnosed by other symptoms, and in all the X-Rays will afford information.

Where there is actual dislocation, reduction must first be accomplished. Then, as in strains, the straps are applied as follows: The patient stands in his best position with his hands to-

gether at the back of the neck, in front of the physician. Adhesive straps, two inches wide and eight or nine in number, are applied running from below the anterior superior spine to the level of the trochanters on the opposite side and pulling in each direction alternately as tightly as possible.

To reduce a dislocation, the patient is anesthetized, the leg extended and raised; he is then turned on his face and strapped. In some cases, reduction may be accomplished with the patient prone and the shoulders and hips resting on some stationary object. The weight of body pulls the sacrum into place.

The straps should be renewed in six or seven days. In some instances this will be all that is necessary. In others a belt or jacket or brace will be required, the majority being relieved by a well-made leather belt occupying the same position as the adhesive straps and held in place by perineal bands.—(*Southern Medical Journal*, April, 1912)

Cholecystitis.

Walter H. Ross, Brooklyn, says that the prevalence of instances of gall-stone disease, renders the subject one worthy of careful consideration by the general practitioner just as much as by the gastroenterologist and the surgeon. In fact, the disease is essentially a medical one. Even those cases in which resort to surgery is necessary are dependent upon medication for permanent good results. The lack of appreciation of the number of cases and the want of a rational treatment have caused this fact to be overlooked.

Gall-stone disease is not purely a disease due to a foreign body, but is primarily a hepatic disorder. The removal of the stones is but the mechanical beginning of treatment, as will be appreciated by a consideration of the underlying causes.

The disagreement over the cause of cholecystitis is due to the fact that there is no one cause. The condition is the result of all the causes that have been seriously advanced. The oldest theory, that gall-stones are the result of biliary deficiency in the sodium salts, is as true as it ever was. For many years Naum's theory of infection has prevailed. Recently, Aschoff and Baemeister, after considerable research work and many autopsies, have assigned stasis as the cause. All are probably true causes, conjointly but not individually.

Complete obstruction of the duct or virulent infection demands immediate operation. Otherwise, it is safe to follow the lead of Kehr and Moynihan who, in their exhaustive treatise, advise medical measures in all cases for a period of six weeks before deciding definitely that operation is necessary. Whether the case be operative or non-operative, the conditions are two-fold. In general, there is an overloaded and deteriorated system for which tonics, limited diet and stimulation of all the emunctories are indicated. Specifically, there are an abnormal liver, a diseased gall-bladder full of bacteria, a debased bile and a gastrointestinal catarrh. For the catarrh, calomel and salines are indicated, especially sodium phosphate, one to two drams daily; for the liver we use cholagogues. This method of treatment builds up the system and allays inflammation.

But we must remember that the cholecystitis and, perhaps, the stones are still there. Unless these are removed future attacks are inevitable. To successfully treat this condition it is essential to remember the existence of the stasis and to find and remove its cause; to remember that cholesterin constitutes from 70 per cent. to 80 per cent. of any stones, and that it is soluble in volatile fatty acids, and is held in solution by the bile salts; also to remember the lack of sodium salts and the presence of bacteria. Former treatment with olive oil, sodium benzoate, saline, glycerine and Durande's drops did not affect these conditions.

Sodium salicylate, which is excreted by the epithelial cells of the hepatic duct, is valuable for relieving congestion of the mucous membrane, as well as for its antiseptic power. Hexamethylene-tetramine is excreted by the liver and the pancreas as well as by the kidneys, and is a useful antiseptic in these cases. Acid sodium oleate is useful as a solvent through its excess of oleic acid. It acidifies the bile, keeps it fluid, prevents formation of gall-stones and aids in dissolving them if present. Iron succinate is a cholagogue of thirty-five years' standing. Sodium succinate is of more recent origin. Both lessen spasm and aid in emptying the gall-bladder of bile and small stones. Sodium glycocholate and sodium taurocholate act as direct solvents of cholesterin in addition to their physiological action. Each and all supply sodium.

Physiological experiments have proven that these drugs are eliminated at least in part by

the liver. They furnish the necessary action where it is needed. Cholecystitis can usually be cured by the intelligent exhibition of the before-mentioned remedies combined with a rational mode of life. For successful permanent results, whether the case be operative or non-operative, the treatment must be vigorous; and not only the physician but the patient must be sufficiently impressed with the long duration of the underlying condition and the consequent necessity of persistent, continued and not spasmodic treatment, even long after all active symptoms have subsided.—(*American Medicine*, March, 1912.)

Cocain in Chancroid and Sluggish Ulcers.

G. Frank Lydston, Chicago, from the use of cocaine as a preliminary to cauterization of chancroids, has arrived at the conclusion that the drug is useful aside from its anesthetic properties. By the application of a tablet containing from one-fourth to one-half grain the ulcer within a few minutes is transformed into a vascular, healthy surface from which exudes a bloody serum. The soluble tablet is applied with a small cotton swab moistened to facilitate solution. The drug is rubbed into the ulcer lightly with the swab. The application of cocaine in this manner once or twice daily, is of great service, especially when the sore is inclined to be sluggish. Its use is of necessity restricted to small areas, but is not confined to chancroids. The drug acts in effect by inducing hyperemia. The change in the appearance of the ulcer is really marvelous.

The action of the drug in combating infection is quite obvious. The exosmosis is so marked that the author questions whether cocaine might not be safely used on larger surfaces than would, at first sight, seem wise. The action of cocain on superficial ulcers is a beautiful demonstration of the manner in which the drug favors hemorrhage in operations of the urethra, nose, etc. The rationale of the action in the manner above suggested obviously is the same as that of the Bier method.

Having but recently begun the use of cocain in chancroid, the author is not prepared to give a final conclusion as to value in expediting healing. From his experience to date, however, he is led to believe that it is a remedy of great value. Carefully used in sluggish ulcers of any kind, the drug should be of great service. Infection cannot long withstand the hyperemic assaults induced by the cocain.

He has found the following formula to be of especial service in the use of the drug by the patient:

R

Cocainæ Hydrochloridi.....Gr. xx.
Carbonis Animalis.....3 j

M. Sig.—Apply twice a day. Cleanse ulcer carefully with hydrogen peroxide and dry thoroughly before applying powder.—(*Jour. Amer. Med. Assoc.*, Feb. 24, 1912.)

The Use of Definite Temperatures in Treating the Disease and the Destruction of the Gonococcus.

J. A. Fulton, Astoria, Ore., believes that when we make use of heat and cold as therapeutic measures we should have a means of gauging the amount of heat or cold that we apply, and should maintain an even temperature. He believes that many germs may be killed by a temperature that is compatible with life in the part treated. The skin can stand a steady heat of 120° without injury. In making heat applications an electric pad may be used wrapped around the part to keep up an even temperature. The author has stimulated obstinate leg ulcers to heal by means of the continuous application of heat for twenty-four hours. The gonococcus is of low vitality and can be killed by a temperature of 120°. The author applies this temperature to the urethra by means of a metal tube in which water is made to circulate at a given temperature. He has treated a number of cases by means of this method, and believes that in this way gonorrhea can be cured, and even aborted by a few treatments or even only one treatment.—(*Medical Record*, February 24, 1912.)

Book Notices.

Handbook of Practical Treatment.—In three volumes. By 82 eminent specialists. Edited by JOHN H. MUSSER, M. D., Professor of Clinical Medicine, University of Pennsylvania; and A. O. J. KELLY, M. D., Late Assistant Professor of Medicine, University of Pennsylvania. Volume III. 8 vo. 1,095 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1912. Per volume: Cloth, \$6 net; half morocco, \$7.50 net.

The third and last volume of this work, after some little delay, has appeared. Judging from the well-known list of contributors it should prove authoritative. The subjects treated are of the most practical benefit to the student and busy doctor, because they relate to the diseases

most commonly met with in daily work. Taking the three valuable books as a whole, they form a useful and valuable addition to any medical library.

M. D. H.

Practical Cystoscopy and the Diagnosis of Surgical Diseases of the Kidneys and Urinary Bladder. By PAUL M. PILCHER, M. D., Consulting Surgeon to the Eastern Long Island Hospital. 8vo. 398 pages. 233 illustrations, with 29 in colors. Philadelphia and London: W. B. Saunders Company, 1911. Cloth, \$5.50 net.

Cystoscopy has done much in recent years to advance both diagnosis and treatment of genito-urinary diseases. The volume before us deals with this important subject in its various aspects, and takes up at some length in an introductory chapter indications for the use of the cystoscope. Then follow sections, with numerous sub-divisions, on the technique of cystoscopy, of ureter catheterism, chapters on the diseased bladder, diseases of the prostate, of the ureter, on the functional activity of the kidneys, on diseases of the kidneys, and, finally, on the therapeutic uses of the cystoscope. A large number of illustrations, many being in colors, add materially to the worth of the book, which is printed in large type on handsome paper. This work by Pilcher is so distinctly practical in its effect, and is so attractively and skillfully presented, that it will no doubt serve as a standard authority for many years to come.

Editorial.

Blood Culturing As a Diagnostic Procedure.

Bacteriological investigation of the blood as a means of determining the organism responsible for a systemic infection is a highly scientific diagnostic procedure and one often productive of most helpful and at times almost astonishing results. Considering the frequency with which the specific organism shows itself in the blood at some time during the progress of several of the most important acute and chronic infections, it is rather surprising that the practice of making blood cultures is not more common. Certain difficulties are, of course, encountered, but these are perhaps scarcely greater than in other directions of general diagnostic work.

Perhaps one explanation why this procedure is not more frequently undertaken lies in the

fancied difficulties surrounding an attempt to draw the requisite amount of blood. This feature should not be considered one of any great difficulty. There are few things easier in the field of diagnostic technic. Sterility of the site of puncture secured by tincture of iodine and a boiled glass syringe and needle are the only essentials. Puncture of the vein in adults is easily and quickly performed.

The isolation and identification of the organism is the only part of the procedure presenting any great difficulty, and even this is, at times, exceedingly simple. Of course, it may occasionally be necessary to undertake rather long and tedious cultural experiments, but that is the exception. Certain comparatively recent advances in technic and media have made it possible to approach the problem of identification of pathogenic organisms in the blood with little apprehension as to the difficulties ahead. For example, it is almost as easy now to diagnose typhoid fever by a blood culture as by means of the Widal.

The increasing importance of autogenous vaccine work may give an impetus to a more general adoption of blood culturing not only as a diagnostic procedure but also as a therapeutic means.

WM. A. SHEPHERD.

South Piedmont (Va.) Medical Society.

There was a large attendance at the fourteenth stated meeting of this Society in South Boston, April 16th, and a number of interesting papers were read and discussed, in addition to those on Diseases of the Thyroid Gland, the subject for general discussion. Dr. J. S. Haile, Chatham, presided and Dr. Geo. A. Stover, South Boston, was in his accustomed place at the secretary's desk. The three sessions of the day were brought to a close with a most enjoyable banquet given at the Garland Hotel.

The next meeting will be held in Lynchburg, November 19, 1912. The following officers were elected for the ensuing year: President, Dr. H. S. Belt, South Boston; vice-presidents, Drs. W. M. Smiley, Houston; Geo. P. Hamner, Lynchburg; I. C. Harrison, Danville, and C. H. Gibbs, Charlotte C. H.; secretary-treasurer, Dr. Geo. A. Stover (re-elected), South Boston.

The Southern Sociological Congress

Will be held in Nashville, Tenn., May 7-10, 1912. As the annual meetings of the National

Conference of Charities and Correction have been held mostly in Northern cities, and have been attended principally by Northern people, with discussions of questions from their viewpoint, Governor Hooper, of Tennessee, with the co-operation of the Governors of fifteen other Southern States, has called this conference for the purpose of studying and improving social, civic and economic conditions in the South. The speakers will include a number of men prominent in the medical profession.

Chronic Alcoholics to Be Admitted to State Hospitals.

The Attorney General of Virginia has recently rendered the decision that State hospitals cannot refuse to accept chronic alcoholics when duly adjudged insane. He makes the suggestion that they may be returned to their homes when they recover, which is usually as soon as they are entirely sober. The communities committing them would thus probably soon tire of the expense and trouble of recommitting them.

In view of the above decision, it seems imperative that the appeal repeatedly made by Dr. J. C. King, of the Southwestern Hospital, and others prominent in the profession, for a separate State institution for inebriates should be immediately adopted.

Seventh International Congress of Tuberculosis.

At the meeting of the Congress in Rome, April 14-20, representatives of the United States Government made an urgent appeal for the prevention of tuberculosis at its source by the pasteurization of dairy products, as investigations by the Government have demonstrated that "the milk from tuberculous cows is a real and considerable factor in the persistent increase of tuberculosis among human beings."

University College of Medicine, Richmond.

Though it will be several weeks before the entire new building of the college will be ready for occupancy, the new medical dispensary has been practically completed and was opened this week. When finished, the college will be one of the most complete in the country. The dispensary occupies the entire lower floor, and will be under the supervision of Dr. Stuart N. Michaux, chairman of the dispensary committee, and Dr. M. O. Burke, superintendent.

The Health Association of Hampton Roads

Was organized at Norfolk, Va., about the middle of March with the following officers: President, Dr. Southgate Leigh, Norfolk; vice-president, Dr. Jos. T. Buxton, Newport News, and secretary, Dr. L. T. Royster, Norfolk.

Virginia State Board of Pharmacy.

Of the class appearing before the Board in Richmond, April 16, only seventeen of the thirty-eight for registered pharmacist, and twenty-four of the twenty-eight for registered assistant pharmacist, were licensed.

The Purdue Frederick Co.,

Manufacturing chemists of New York City has removed to and is now permanently located in its new building, 135 Christopher street.

For Sale.—Sanatorium, with complete equipment, located in the best section of the Magic City of Roanoke. For *particulars and terms*, address The Keister Home Sanatorium, 22 Seventh Avenue, S. W., Roanoke, Va.

For Sale.—Unopposed country practice in Tidewater section of Virginia, with ten-room residence, barn, etc., by doctor who wishes to specialize. An excellent neighborhood in fine farming section, convenient to churches and schools. Roads good. Nearest physician twelve miles. For full particulars, address H. J. K., care this journal.

Wanted.—As pupil nurses at Catawba Sanatorium for Tuberculosis, young women who are cured, or arrested cases. Address Miss M. P. Ewald, Head Nurse, Catawba Sanatorium, Va.

Obituary Record.

Dr. Rawley White Martin

Is dead. These few words will bring sorrow not only to members of the profession, but to a number of people throughout our State, for, to many, as to us, he was the ideal of the true physician, and the one beloved and esteemed among Virginia doctors.

Born in Pittsylvania County, Va., September 30, 1835, he died at his home in Lynchburg, on the night of April 20th, after a short illness from pneumonia, and was buried at Chatham, Va., where he passed the greater portion of his life. The funeral was largely attended, including many friends and admirers

from a distance. The magnificent floral offering was a tribute in itself.

He received his academic education at Ridgeway School and the University of Virginia, and graduated in medicine from the University of the City of New York in 1858, after which he returned to Virginia to practice his profession.

Of a long line of military ancestors, he early heeded the call to arms in 1861, and entered the Confederate service with the rank of lieutenant in the Chatham Grays. He participated in a number of the fiercest battles of the war, and, by his bravery, earned rapid promotion. Attached to Armistead's Brigade of Pickett's Division, Dr. Martin was in command of the Fifty-third Virginia Regiment in the famous charge on the third day at Gettysburg, and was one of the few Confederate soldiers to penetrate the second line of Federal defenses, within which he was found after the battle by Federal surgeons, seriously wounded and unconscious. After three months in a field hospital, he was taken prisoner to Fort McHenry and later to Point Lookout, where he remained until he was exchanged in May, 1864. Owing to the impaired condition of his health, he could not again enter the ranks, but was detailed for special duty until his parole in June, 1865.

At the close of the war he resumed the practice of his profession in Chatham, moving to Lynchburg in 1895. The distinction he won in the Confederate service but repeated itself in his professional career, for he was the gracious recipient of all the honors the doctors of the State could confer upon him, having served as vice-president and president of the Medical Society of Virginia, president of local medical societies, member of the Medical Examining Board of Virginia and its president since 1892, and president of the State Board of Health since its reorganization in 1892. He is survived by his wife and six children, one of them, Dr. R. W. Martin, Jr., and a son-in-law, Dr. R. M. Taliaferro, both prominent among the younger members of the profession.

As one of the editors of this journal, and a life-long friend of our former editor, we feel his death as a personal loss. Dr. E. G. Williams, State Health Commissioner, has well said: "The death of Dr. Martin is one of the severest blows that health work in Virginia has ever received. His great prestige and his

spotless character gave to every enterprise in which he was engaged a strength and power of the greatest value. His mature judgment and his knowledge of men made him a natural leader. Virginia could ill afford to lose this prince of physicians."

No less renowned in peace than in war, all that is earthly of Dr. Rawley W. Martin—a man of many virtues, noble friend, gentle physician, wise counsellor and brave soldier—now rests in a casket of Confederate Gray, beneath the hills of Virginia, his spirit having winged its way to eternal glory.

Dr. John Herr Musser,

Eminent as an internist, teacher, author and scientist, died of angina pectoris, at his home in Philadelphia, April 3d. He was born in Strasburg, Pa., and had he lived until June 22 would have been fifty-six years of age. Coming of a long line of medical ancestors, he early decided upon the medical profession, and graduated from the Medical Department of the University of Pennsylvania in 1877. About the first fifteen years of his life were spent in general practice, after which he gave most of his time to specialty work. He was an active and honorary member in numerous local and national societies, and at various times served as president of many of them, including the American Medical Association, of which he was president in 1903-4. He was elected an honorary member of the Medical Society of Virginia in 1900. His loss will be keenly felt in the medical world.

Dr. William Hoskins

Died suddenly at his home in King and Queen County, Va., April 12, while directing some work on his farm. He suffered a stroke of paralysis about a year ago, while living in Newport News, and upon recovery, returned to his native county in the hope of recovering his health. He was born February 12, 1874, and received his academic education at William and Mary College. He then studied medicine at the Medical College of Virginia, from which he graduated in 1898, and located in Newport News, where he built up a large practice. He was prominent in his profession and had at various times been identified with the State and local medical societies. His wife and three small children survive him.

THE Virginia Medical Semi-Monthly.

(FORMERLY VIRGINIA MEDICAL MONTHLY.)

Vol. 17, No. 3.
Whole No. 387

RICHMOND, VA., MAY 10, 1912.

\$2.00 a Year.
10 Cents a Copy.

Original Communications.

PREVENTIVE MEDICINE.

By A. J. BURKHOLDER, D. V. Sc., M. D., Staunton, Va.

In this age of progress we have our State, county and municipal boards of health, school inspectors, sanitary inspectors, ordinances pertaining to civic reform, means employed for the eradication of pests that carry disease, methods calculated to exterminate disease-producing animals, compulsory vaccination, antitoxines and other means to inhibit the propagation of transmissible diseases. Likewise, there are laws against misbranding or adulteration of food, the use of preservatives, or carelessness in handling substances intended for human consumption. All such officers are officially clothed with authority, and are presumed to execute the laws in a conscientious manner. Yet, are they able to do it, and why is it a fact? Lack of support, indifference and favoritism on the part of their co-workers and superior officers, too much side-stepping, too weak in the knee, too much disposed to use their office to gain popularity instead of justice to all men and favors to none.

An unfriendly public is always to be reckoned with; drastic criticism and opposition are met with in every direction, and the officer makes but feeble effort in the direction of least resistance only. Soon, however, his hands fall and he retreats to a more friendly atmosphere.

Little can be accomplished toward eradicating any disease or effectually preventing those disorders that prey upon the vital forces of mankind, thereby lessening usefulness and destroying mind, body and soul, without first securing the public's co-operation.

Diseases, unfortunately are transmissible. If such was not the case, it would be comparatively easy to bring about a more satisfactory condition of public health. At times a given section of the country is free from outbreaks; but

sooner or later a so-called fresh infection occurs. That this fresh infection is generally nothing less than a fresh outbreak of the old infection which remained dormant about the premises requires no argument. It may have been hidden away in the earth, in the clothing, about the furniture, or other house furnishings, or in the body of an inmate of the house, or in one of those good old souls whose curiosity carries them to every sick room in the neighborhood to hear what the doctor says, or to suggest some sort of a poultice that never fails. Often the germ is carried by the pet dog, cat, insects, or by animal food products from a distance, surface water, milk, utensils, and drinking cups. That tuberculosis affecting dairy cows does exist in at least ten per cent. of all such cattle, and that it is transmitted to children and milk drinking adults, through the milk of such cows, has been abundantly proven, as well as that other diseases exist in dairy cattle which render their products unfit and dangerous, and which have apparently received no attention.

That diseases of a repulsive character are contracted and transmitted to innocent individuals through ignorance, and that many cripples, imbeciles, blind and insane are caused by such diseases is not to be questioned.

Thousands of dollars are appropriated annually for the relief and maintenance of these sufferers, and the amount expended every year in trying to enforce preventive measures has become burdensome; yet, statistics show that the mortality has increased. Research has accomplished much, and prophylactic efforts are being intelligently directed; yet the expense incurred is great, and in many instances the benefit is of brief duration.

The medical profession must have the co-operation of the people at large if anything like success is ever obtained. This may be difficult in large cities where the population is ever

changing—largely by foreigners—but contagious disorders, births, deaths, permits and inspection are reduced to an exact system, and there the facilities are better for the management of infectious diseases than in smaller towns and rural districts where no free dispensary or contagious wards are available. Even without such advantages, excellent work has been done by the practitioner in the country; yet he receives but little help after war is declared.

The world at large is antagonistic to sanitation—all efforts in this direction are regarded as undue restriction. Through a lack of knowledge, the people cannot understand just how such little things like a fly or mosquito, or imperfect drainage, or filth can possibly be responsible for an outbreak, or the dissemination of dangerous disease germs.

Therefore, restriction is regarded as persecution, and instead of co-operation there always exists sufficient opposition to seriously cripple the effectiveness of measures employed.

To enforce strict rules would involve individual expense, and in some instances a loss which would seriously affect the owner for which no indemnity is available; but to attempt thoroughness, which is absolutely essential, without due regard to the technique would be incomplete, and calculated to discredit the true value of sanitation.

It is not the severity of a disease that creates high mortality always, but the complications, especially in feeble constitutions that we most dread. Measles, for instance, is regarded as a simple disease of childhood which all children must have, the sooner the better—that it is not dangerous. With this view, the infection is frequently welcomed by the ignorant parents, not being aware of the fact that three times as many children die annually from measles as from smallpox. This and many other diseases equally dangerous should be avoided, instead of being sought after, and cultivated as if they bestowed some priceless everlasting favor upon their victims.

There exists no sane reason for perpetuating the contagion of any disease simply because a few uncomplicated cases in robust children apparently do but little damage, for, in many, serious results are to be found; and a few deaths cannot be denied. Even if this was not a fact, what evidence has ever been introduced show-

ing that any child was ever benefited by any disease?

We have at our command the means by which the majority of diseases may be detected, and it is no longer guess work regarding their value if properly applied. However, it requires exactness in order to avoid error, and to pretend that any biological test is positive or negative without the employment of the highest degree of accuracy becomes a fraud.

To conceal the presence of an infection in order that other children of the household may attend school and other public places is frequently done, and no preventive measures are used after recovery.

Is not one case of any infectious disease sufficient to inoculate a whole city, or an entire county? And in every instance of an epidemic, the source of infection can be traced to the door of ignorance, carelessness, willful concealment, or disbelief in sanitation.

What we need in this great warfare against disease is a people who manifest a readiness to co-operate with the medical profession, a people who believe in getting out of the old rut, and in the adoption of modern ideas, a people who are willing to throw aside the fake ideas that have been handed down since the days of Adam, and accept correct teaching regarding the etiology, rational therapeutics, and practical application of scientific means to prevent dissemination, which eventually will completely exterminate the disease. And if such effective work is faithfully carried out in every instance throughout our country, we would soon be free.

Abundant evidence can be introduced to show wherein ignorance regarding the proper use of antiseptics, isolation, quarantine, and after treatment of infected premises is at fault. Not only is this true regarding diseases classed as contagious, but the masses are also ignorant of the existence of many loathsome disorders, which when once contracted, are seldom, if ever cured.

If such diseases only affected the guilty party, it would be less serious; but the innocent suffer, for the virus is transmitted from generation to generation, and its subjects are a menace to society, a disgrace to an enlightened age, a curse to themselves and their posterity.

Now what is the remedy for this unsatisfactory attitude of the public? Educate the people sufficiently in medical matters to create

an appreciation of all that is attempted for their relief; awaken an interest and create a desire on their part to escape the poisons that cause suffering and mourning in the habitations of men.

Health is wealth. Upon it depends prosperity and the strength of a nation; without it, sickness brings poverty, poverty crime, and crime fills our institutions, which in turn depletes the treasury, increases taxation, which again suggests poverty.

Yes, education offers relief; but in order that such knowledge may reach those who stand in the greatest need, it must be adopted in our school curriculum. It must be eminently practical, not a wild course into the clouds of scientific mysteries, which would result only in doubt and confusion.

Education along medical lines should embrace physiology, gross anatomy, hygiene, biology and pathology. These branches should embrace all subjects necessary to equip the boy or girl to grow and live intelligently, to protect themselves against the many evils which obstruct the pathway of life. It should teach them the dangers of disease, dissipation, drug addictions, vicious habits, the patent medicine curse, the folly and results of superstition and falsity of various cults now being exploited upon the ignorant.

A false sense of modesty, in years past, kept much important knowledge from young men and young women; the result has been disastrous.

Our insane asylums are filled to their capacity; our institutions for the congenital cripples, the incorrigible, the feeble-minded, the blind, the mute, the illegitimate, the epileptic, the imbecile, the pauper, the tuberculous, the criminal and the untimely graves have all contributed evidence showing this to be true.

Many of these could have been and should have been free from stain and diseases directly responsible for their deplorable condition. Nineteenths of the pelvic disease of women requiring surgical intervention are due to specific causes. Yet some dare to oppose proper education along these lines at a suitable age, even claiming that ignorance of reproduction, and knowledge concerning the social evil had better be kept from boys and girls budding into manhood and womanhood, that their safety depends upon their ignorance and such state should be religiously

maintained, that the youth will learn these things sufficiently early in life. Yes, they will obtain such knowledge much earlier than imagined; but from what source? Observation, reasoning, sensational literature and from the mouths of the wicked, immoral, and the degenerate.

Information from these questionable teachers appeals to an impressionable nature which has not been protected by a knowledge of the evil effects and consequent dangers, and the foundation is laid for degeneracy, unless the youth has been exceptionally well born.

Some of our most profound thinkers, and leading educators have begun to realize the value and importance of a more thorough course of instruction on this subject. Physiology has been taught in our schools for years; but the teaching has been confined to the function of the stomach, the teeth, the skin, exercise and rest, and the circulation is studied in part also. Now we know that this is not physiology—at least, it is such a little part of it that the student scarcely knows anything of this branch that enters so largely into every function, involuntary and voluntary act of his daily life.

Preventive medicine includes all branches pertaining to medical science, and is a course separate and distinct within itself, emanating not alone from any single branch of study, but from the entire medical field, which also embraces comparative pathology, and requires a general and special knowledge of medicine to formulate the special branch designated as preventive medicine.

Our aim should be to establish the best safeguard against disease, to judiciously expend public appropriations so as to obtain permanent benefits, to educate our boys and girls to live right, to be pure, moral, healthy and strong. Then we can expect to accomplish the desired results, and have a people who willingly lend their best efforts to this great cause. When this is done, preventive medicine will become a present fact, instead of a future hope.

SYPHILIS. DIAGNOSIS AND TREATMENT.

By G. B. TRIBLE, M. D., Washington, D. C.
P. A. Surgeon, U. S. Navy, and Instructor in Ophthalmology, Otology and Laryngology, U. S. Naval Medical School.

It is probable that more errors in diagnosis are made in this disease than in all other combined. There is always a tendency to overlook

the commonplace in endeavoring to explain any given phenomena and to seek to explain it by some mysterious agency. Before the widespread use of the Wassermann reaction or its modifications, the Noguchi, and the isolation and identification of the causative factor, untreated syphilitics ran at large everywhere; the disease itself was considered on a par with leprosy, and its unfortunate possessor was an object of anathema.

If anyone had suggested that the semi-imbecile, the mentally and physically deficient scion of good stock was probably the result of untreated syphilitic disease in the parent, they would have been considered syphilophobes.

One of the most common causes of error in the diagnosis of syphilis has been the so-called chancreoid. It has been described as specific entity with a bacterial origin in the Ducrey bacillus. The term has been applied to all lesions of the genital tract from herpes to the local lesions of the acute infectious fevers. For the past five years, seeing so many atypical primaries followed by typical secondaries, or discovering tertiary with no history of primary or secondary, it has been repeatedly demonstrated that the popular conception of the primary syphilitic lesion is wrong and that all or any lesion of the genitalia following intercourse is a *prima facie* evidence of syphilis, and can be disproven only by the absence of treponema and repeatedly negative Wassermann reactions.

Out of a given number of chancreoids, so-called, and a like number of typical hard chancres followed for an equal period, there will be approximately the same number of positive Wassermann reactions; the same proportion will be followed by typical secondary and tertiary manifestations. However, there will be difficulty in demonstrating the treponema in an equal percentage of cases, for the so-called chancreoid is either a pus infection engrafted upon a syphilis or a syphilis engrafted upon a simple infected abrasion. If a simple abrasion does not have a luetic infection, it will heal readily in a few days. The presence of a mixed infection renders the treponema hard to demonstrate; whether from the hyperemia and increased circulation, they are most rapidly disseminated, it is at present undetermined.

There were thirty-five cases of chancreoid admitted to the Naval Hospital, Norfolk, Va., during the calendar year 1911. Of these cases,

eleven, while under treatment, gave positive Wassermann reactions or yielded treponema in smears. Ten of those discharged to duty came back with typical secondaries; four of the remaining have this year given Wassermann reactions strongly positive, and two have given weakly positive reactions. That accounts for four-fifths; the remaining fifth may be heard from in other hospitals as syphilis, or may go on to later tertiaries, or may never show active symptoms. In the health record of many patients with syphilis there are entries of chancreoid, while the patient presents himself with typical secondary eruption.

Gonorrhœa may mask syphilis. Given a patient with profuse discharge showing gonococci, the existence of a chancre intrameatal or intra-urethral in location in many cases will be overlooked. The enlarged inguinal glands are taken to be the result of gonorrhœa, and even the outbreak of secondaries may be mistaken for a drug eruption. Cases of this nature have several times fallen under our observation. This probably accounts for the opinion frequently expressed by the laity that a bad gonorrhœa "runs" into syphilis; it has been a matter of common observation that an obstinate urethral discharge would occasionally be followed by secondary syphilis. Cases of phimosis due to chancres with no gonorrhœa at all, but a creamy purulent discharge from the preputial sac may be taken as gonorrhœa. The frequency of such conditions may be estimated by the fact that seven diagnoses were changed from gonorrhœa to syphilis at this hospital during the past year.

Our ideas of the singularity of chancre have undergone a change. There is no reason why there should not be as many chancres as there are original foci of infection. The accompanying illustration is that of a case seen by Dr. V. Brooks, of Portsmouth, Va. The patient had been circumcised in youth. The mucous membrane of the glans penis had been changed into a tissue like hard, horny skin. The infectious material was unable to find a suitable site for growth and reproduction on a soil of this nature. At the points where the penis rubbed, each at the circumference of a circle of which the length of the penis may be taken as a radius, there were two distinct primary lesions. Later, typical secondaries developed.

On several occasions we have seen multiple primaries not in contiguity; for instance, one

exists on the dorsum of the glans penis and another on the scrotum. In the case of a master-at-arms, bitten by a syphilitic, there were lesions on the hands and fingers. It is possible, at least from a theoretical standpoint, to have



direct penetration of the treponema into the lymphatic or general circulation through fissures so minute as to escape observation.

Gangosa, a disease identical with syphilis, giving the same serum reaction and responding to the same treatment, has usually no primary or secondary, but is directly a tertiary or quaternary form of lues. Occasionally there are cases in which an initial lesion resembling a mother yaw is found. Syphilitic mothers of syphilitic off-spring may never be aware of their infection until the late tertiaries develop. Two different distinct infections of syphilis may exist at the same time. One may be in the secondary stage, but if not enough resistance has been secured, there is no reason why another primary may not develop.

Finding the treponema or getting a positive Wassermann reaction in all cases of genital sores following intercourse is a positive evidence, while their absence is not negative evidence.

The time of incubation of the initial lesion is from any time to a probable limit of forty days. It simply means proliferation of the treponema and the reactive inflammation of the tissues sufficient to produce a noticeable sore. The period of development of secondaries ranges from one to six months after the initial lesion.

Secondaries are characterized by a multiformity of lesion. Their descriptions are so often given and are so long that it is impossible to enter into this phase in an article of this nature. Ulcers of the nasal septum, mucous patches, chronic syphilitic tonsillitis and iritis all come in this category. It is worthy of note that the skin eruptions may be entirely absent or so transitory that in a certain class of patients it may never be noticed.

Following the primary on the genitals, the development of an inguinal adenitis is to be expected. In cases of mixed infection, the glands may be prone to break down. However, there is no reason why plain, uncomplicated luetic glands should not necrose for all luetic lesions are characterized histologically by poor vascular supply. Rectal examination should always be made. An unsuspected primary may be found there or lesions of the later stages, such as the condylomata, or ulceration with beginning cicatrization may be present. General glandular enlargement, enlargement of the epitrochlear or more especially enlargement of the two chains of posterior cervical glands is practically pathognomonic. The other conditions causing the enlargement are so well-marked and distinctive that no confusion can arise.



Chancres of the lips, buccal mucous membrane or tonsils are remarkably rare, when the possibility of infection through promiscuous kissing, common drinking glasses and other causes is considered. Primary lesions in these localities are characterized by extremely marked local glandular enlargement.

The tertiary lesions are manifold in character. They embrace all known pathological conditions; many obscure cases in internal medicine are rendered remarkably clear by a Wassermann reaction. The histories given by the patients mean nothing. The old Latin proverb, *omnes syphilitices mendant*, is as true now as in previous years. Ophthalmologists for years have given mercury and the iodides empirically in deep keratitis and iritis as well as other obscure eye conditions which have since been proven mainly syphilitic. The same is true of the origin of nervous disorders in many cases, for instance, tabes, general paresis, the dementias, often of syphilitic origin, and the cerebral hemorrhages, especially in the young and middle-aged; in fact, the blood vascular system is a favorable site of syphilitic infection. Premature arterio-sclerosis and aneurysm are usually due to syphilis. Chronic arthritis is very frequently due to gonorrhœa, syphilis, or both. In all cases, to satisfy the patient, a Wassermann reaction should be done. Smears should be made from the primary and suitable secondaries, and rubbed up with India ink, or stained by Giemsa's method to demonstrate conclusively the cause of trouble. To await the secondary eruption is folly. In a certain percentage of cases, the secondaries may not appear and the patient is allowed to go with an untreated infection. In cases of typical secondaries, we have simply allowed a vigorous proliferation of the treponema and the invasion of new tissues, have allowed them to become established in lymphatic glands, and surrounded by masses of indurations, and have rendered them more obstinate to treatment.

Treatment.—Excision when practicable and possible of the initial lesion. Circumcision if the primary is on the prepuce is an easy method of eliminating it. Circumcisions heal practically as well in active cases of gonorrhœa and syphilis as otherwise. A certain amount of infection is always likely, since it is impossible to render the penis surgically clean. A dorsal slit is unpardonable in cases of phimosis or paraphimosis, for there is no more pain to a properly performed circumcision than there is in a dorsal slit; a much smaller wound is left to heal, and there is no after-operation. A few cases will have pus infection around the entire penis, apparently following the suture line. The upper surface (dorsal) always heals; the

lower is occasionally infected by urine. Enucleation of luetic inguinal glands when superficial and localized should be performed. The glands are resistant to treatment, especially to salvarsan, and probably afford foci for reinfection. Tonsillectomy of chronically inflamed tonsils in syphilitics is advisable for the same reason.

Drug Therapy.—Salvarsan intravenously. Two administrations of the contents of an ampule in saline solution should be given. This has been done in this hospital in nearly 700 instances, with the following results and by the following technique:

Prepare the contents of an ampule in this manner: Mix in a sterile glass flask with 40 c. c. of sterile water or .6 or .9 per cent. sterile salt solution prepared with C. P. sodium chloride; render alkaline with about 23 minims, 15 per cent. sodium hydroxide solution. Add to this enough sterile sodium chloride solution of the same nature as above to make 300 c. c. Make a small incision, 1-2 inch, over vein under cocaine, 1-2 of 1 per cent. anesthesia; in hospital work no anesthesia is necessary. Catch up vein with mosquito hemostats and either plunge in the Schreiber needle, or, as we usually perform it, use an ordinary intravenous outfit with canula. Tie the vein distally with cat-gut. Throw loop around the vein proximally, open vein, insert the canula, tighten proximal ligature over canula, and allow solution to flow by gravity. This has been very satisfactory in all of our cases.

Results.—Probable clinical cure in twenty-five per cent. of cases, who would probably live an active and useful life and die from some intercurrent affection. Taking a negative Wassermann as a guide, probably not more than 10 per cent. are cured after an interval of one year.

The following records are given of twenty five cases that have had repeated Wassermanns and who have been observed for long periods of time, illustrating the variation in types of syphilitic lesions. In none of these cases were the diagnoses in error. It was made by the objective symptoms and appearance, and confirmed by the Wassermann reaction or the finding of treponema in the smears from the lesions. In cases of throat lesions, Wassermanns are always done because of the danger of confusing the other spirochætae with the treponema.

| Name | SYMPTOM | ADMINIS- TRATIONS. | WASSERMANN | | OTHER TREATMENT—REMARKS |
|------|--|-----------------------|--|------------------|---|
| | | Date of 2nd | Date | Result | |
| F. | Late secondary and tertiary..... | 6-25-11 | 7-7-11 12-7-11 | + | Other treatment forced. Not cured. |
| C. | Late secondary throat and general glandular enlargement. Previous treatment | 6-25-11 | 1-26-12 | Neg. | Other treatment. Married, wife not infected. |
| A. | Iritis, glandular enlargement, optic neuro-retinitis | 6-30-11 | 8-11-11 | + | Other treatment. Clinically cured, permanent impairment of vision left eye. Discharged medical survey. |
| G. | Primary and secondaries..... | 6-18-11 | 7-1-11 | + | Other treatment later. Clinically cured. |
| A. | No history, either tertiary or congenital. Hungarian. Diagnosis made by Wassermann. Stomach symptoms. Exploratory for gastric or duodenal ulcer considered | 8-18-11 | 8-15-11 12-16-11 1-30-12 | + | Other treatment. Wassermann accentuated after first administration. Gained one pound per day for about two weeks. Later return of stomach symptoms to later degree. |
| R. | Punched out ulcer of tonsil showing treponema | 6-15-11 | 6-27-11 | + | Cleared up and then returned. Hg and KI given. |
| B. | Secondaries. Papular | 5-13-11 | 6-23-11 | Neg. | No other treatment. Eruption cleared up after second. Herxheimer. Also the throat became sore. Cleared up in two weeks, then clinically cured. |
| A. | Primaries and secondaries. Macular rash | 4-19-11 | 5-12-11 | + | No other treatment. Clinically cured. |
| S. | Hemiplegia. Second time; first treated on board U. S. S. Relief at Olongapo, P. I. Nephritis Edema extremities | 5-2-11 | 5-12-11 | + | Remarkable immediate improvement. KI given later. Medical discharge. In apparent better health than for previous two years. Died from recurrence in Oct. or Nov., 1911. |
| B. | Jaundice, syphilitic liver | 5-2-11 | 7-13-11 | Neg. | Hg and KI given. Most intense jaundice followed, then cleared up. |
| H. | Intractable secondaries | 2-1-11 | 5-2-11 | + | Intolerant to Hg. No treatment. Clinically cured. |
| P. | Mucous patches, general glandular enlargement | 2-9-11 | 5-4-11 | — | Forced Hg and KI. Three doses salvarsan. Lymphatic diathesis. Repeated recurrences. |
| V. | Primary and secondaries..... | 2-4-11 | 1-2-12 | Weakly positive. | No treatment. Clinically cured. |
| W. | Ulcers, punched out appearance tonsils, nasal septum, mucous patches, general glandular enlargement | 5-10-11 | 5-29-11 1-26-12 | — + | Previously taken mercury irregularly. Hg and KI regularly. |
| B. | Primary, typical. Treponema. Excised | 2-17-11 | 1-24-12 | Neg. | No further treatment. Clinically cured. |
| S. | Secondary skin eruption. Glandular enlargement. Jaundice... | 2-18-11 | 5-15-11 | Neg. | Hg and KI. Herxheimer marked. Recrudescence and accentuation of secondary rash for two weeks. |
| D. | Primary, atypical, called "hair cut." No skin eruption. Rheumatism and later meningeal symptoms, intense headaches, dizziness, falling to side | 3-16-11 | 5-20-11 5-31-11 6-17-11 1-6-12 | + | Forced mercurials and KI. Three doses salvarsan. |
| B. | Primary, atypical. Sore throat and secondaries | 5-1-11 | 5-14-11 6-22-11 | + | No treatment during this time. No return, but later Hg and KI for safety. |
| T. | Secondaries | 4-9-11 | 5-9-11 | Neg. | No treatment. Apparent cure. |
| S. | Primary and secondaries, sore throat | 4-4-11 | 5-26-11 | Neg. | No other treatment. Apparent cure. |
| S. | Atypical primary diagnosed chancre. General glandular enlargement and + Wassermann... | 5-22-11 | 5-30-11 6-27-11 7-10-11 1-20-12 | + | Irregular treatment; at present has gonorrhoea and buboes. |
| M. | Immense atypical chancre, diagnosed chancre. Phimosia. Mental symptoms within four months; sent to Gov. Hospt. for Insane with dementia | 5-13-11 | 5-29-11 | + | Forced mercury and iodides. KI. Oct. 6, 1911. |
| S. | Episcleritis. General glandular enlargement. + Wassermann..... | 5-28-11 | 6-27-11 12-8-11 | + | Irregular Hg and KI. |
| L. | Tertiary. Previous Hg. treatment | 7-20-11 | 8-9-11 1-15-12 | + | Consecutive Hg and KI treatment. |
| A. | Large ulcer leg, about 2½ inches wide and 6 inches long | --..... | 4-1-11 | + | Healed for two-third size and then remained stationary. KI and Hg prior to and subsequently. Solution given in large vein over snuff box left wrist. Healed in ten days over three-fourths extent and remained stationary in spite of further treatment. Complicated by varicose veins. |

There is always the greatest temporary improvement especially marked in the mucous patches; all skin lesions and large ulcers heal as if by magic. Frequently patients gain a pound a day for a period of ten days; a sense of mental exhilaration possesses them. Among the physiological effects, or probably pathological, we find a marked rise of temperature, and leucocytosis, especially of the eosinophiles. Coagulation time is not interfered with; we have frequently performed operations the following day with no ill effects. There is occasionally some albumen in the urine and a few blood cells, both white and red. Diarrhea is a frequent symptom. In many cases there is a recrudescence of the secondary rash, enlargement and tenderness over the glands with an occasional localized redness.

These last symptoms were first described by Herxheimer, of Cologne, and are known as the Herxheimer reaction. There have been some instances in which the initial lesion, which had long since healed, again broke out.

There is no relation between the severity of reaction following the intravenous injection of salvarsan and the severity of the infection, nor can the reaction be considered as diagnostic in any sense. A severe reaction in most instances follows some minute error of technique; the solution may be too hot, too cold, may flow too fast or be over alkaline. We always had more severe reaction among the first cases. As the technique improved, the severity of the reaction ceased. It has been claimed that the reaction has been due to the saline solution in part.

Cerebral lues are lues of the nervous system in general has been very little benefited. We had two cases of cerebral syphilis and they both came to post-mortem. In one case a basal gumma was found. The eye lesions are rapidly cleared up, especially the cases of iritis. It is very important to administer salvarsan in these cases very promptly. One administration is, temporarily at least, as effective as six weeks most careful and efficient mercurial treatment. Almost twenty of these cases had syphilitic iritis.

The first 200 patients were given no other treatment. All previous treatment was stopped for two weeks prior to the injection, as it was desired to determine the exact effect of salvarsan. Many of these first cases had been extremely resistant to the mercurial and iodide treatment in all forms. They had been around

the hospital for months and in the ordinary course of events would have been discharged from the service. These cases healed up promptly and the result was so striking that it seemed as if the panacea had been found. Within three months from the time of treatment there were about 5 per cent. of recurrences. These recurrences were practically universal in one type of patients—in those of poor physique, with hypertrophied tonsils and marked glandular enlargement—patients, in other words, of the lymphatic temperament.

Taking the negative Wassermann as a guide, there must be either repeated injections of salvarsan, or better salvarsan combined with mercury and potassium iodide. In this way the disease is attacked from all sides. In cases of long standing where the treponema have become established firmly in the tissues, and are surrounded by tissues of poor circulation, it is impossible to eradicate them by injections unless the protective wall is broken down and absorbed by the iodides.

The ideal treatment is salvarsan, one, two, or three injections, enough to clear up active symptoms and allow the patient to resume his duties without danger of contagion and feeling in himself that he is not a source of abomination. Mercury should be given between the periods of dosage, which should be at ten days or two weeks interval.

Contraindications.—There are no contraindications that we have been able to find. In only one instance was there indirectly any bad result. A patient with an unsuspected duodenal ulcer, after the second injection, suffered from considerable nausea; later had quite severe vomiting (all cases are allowed nothing to eat the morning before injection) first of mucus and ordinary stomach contents, later of coffee ground vomit. This kept up in spite of treatment until death occurred. On post-mortem there were found several small, shallow gastric ulcers, while in the duodenum about six inches from the pylorus there was a deep ulcer opening into the vessel from which most of the blood had come. This ulcer had been of long standing. There was an inflammatory mass in the mesentery about 2 1-2 inches in diameter. A careful dissection of the vein used for injection was done, but nothing beyond the evidence of trauma where the canula had been inserted was found. A few inches above the ligature the vein

was patent. The intestines and abdominal organs were normal other than the ulcers mentioned. The cranial contents were normal.

The disastrous sequelæ effecting the organs of special sense have not been observed. Careful ophthalmoscopic examination has been made prior to injection and afterward if any abnormalities were found. Cases of optic neuritis or neuro-retinitis and syphilitic choroiditis were found, which were unsuspected by the patient. Nothing ever happened after injection which could not have been caused by the disease. Recurrent iritis cleared up as well after a third injection as after the first. In no case was there developed a resistant strain of treponema. No contradiction can be found except the theoretical one, a patient with a vascular system unable to accommodate 300 c. c. of a foreign fluid is a poor subject.

The intramuscular injection should not be given. This method has been everywhere abandoned.

In conclusion, it has been found that there are no contraindications to a properly performed intravenous injection other than could be argued against a simple saline solution. Cures clinically under salvarsan alone are miraculous and probably last in most cases permanently. To get a cure by laboratory standards, that is a negative Wassermann, consecutively at several examinations over a period of a year, probably not over 10 per cent. are so cured. For a permanent result, there should always be first salvarsan to check the disease and get it rapidly under control; then mercury, preferably by intramuscular injections of the bichloride or the salicylate and potassium iodide. Salvarsan can be repeated if the case is intolerant to mercury or has persistent mouth lesions. In this manner it is possible to handle any case if gotten before there is so much degeneration of tissue as to render a cure impossible, with the exception of syphilis of the nervous system, which, after long standing, is very little benefited by any form of treatment.

GENERAL DIET IN TYPHOID FEVER—REPORT OF TWO HUNDRED CASES.*

By G. C. RODGERS, M. D., Elkins, W. Va.

Notwithstanding the fact that diet in typhoid fever has been a subject of discussion for many

years, yet there has been a marked tendency to stay in the same old rut. Marked changes have taken place in the treatment of typhoid; our specifics have been given up one after another, until at present a symptomatic treatment is the only one used by most of us. The patient who, a few years past, was almost starved for water is now encouraged to drink all he can; the patient that a few years ago was hardly allowed a breath of fresh air for fear of taking cold is now kept in a well-ventilated room and is regularly dumped into a tub of cold water and yet does not have colds.

We realize that typhoid fever is a self-limited disease, running an average course of about five weeks, during which time every vital organ of the body is taxed to its utmost. On the usual liquid diet, starvation is added to the other drains, and thus we assist in weakening our patient to a marked degree, and, in my judgment, often to a fatal one.

First of all, I had as well state that the idea which is apparently held by most physicians and nurses that solids are dangerous in typhoid, from the direct risk of punching a hole through the bowel, or causing hemorrhage, is held without sufficient grounds. After we exclude things that are entirely indigestible, and such foods as leave a large course residue, the question of whether a food is a solid or a liquid at the mouth has but little to do with its physical state or irritating properties twenty feet down the alimentary canal, the approximate depth of the typhoid lesions. I think you will all agree with me that there is nothing that lends quite so much to hemorrhage and perforation as distention from gas, and if there is anything that is more likely to give gas than sweet milk, I have failed to find it.

Now, in discussing this subject, I will grant without argument that my views are in opposition, so far as I know, to every text-book, from the oldest to the most recent, and I realize that in advocating a liberal diet in typhoid I am asking for what many of you have never given a serious thought, and of which very few of you have ever made a trial. I wish, however, to state in the beginning that I am not unveiling to you some air-castle, but I am presenting this after ten years diligent study and considerable experience. The cases reported here are my last two hundred cases taken consecutively, and I am prepared to furnish charts and written records

*Read before the forty-second annual meeting of the Medical Society of Virginia, at Richmond, October 24-27, 1911.

for each and every one of them. In this series there were no deaths, no perforations, slight hemorrhages in five cases, marked distention in one case only, and that lasted but twelve hours; prostration, delirium, dry tongue and tympany were almost unknown; reinfections were rare, occurring only in nine instances. I should also state here that during the treatment of this series, I have treated ten cases on the usual liquid diet, six because they would not take anything else from the very beginning, and the remaining four because the doctors referring them preferred it. Out of the first six, four died; one from hemorrhage, one from perforation, one from meningeal involvement, and one from toxemia. But, to be fair, I think the same patients would have died on any diet, for they showed almost no resistance, and became profoundly toxic very early in the course. I might also state here that I have fed many more typhoid cases on a liberal diet than are included in this report, but during that time I allowed myself to be bound down by the shackles of public and professional criticism, and only fed the ones that I felt sure would recover, and so do not think it fair to report them.

I am credited with making the statement, while a student, that I believed more typhoids died, either directly or indirectly, from starvation than from all of the other causes together, and I believe it more firmly to-day than ever. Seven years ago, I advocated this same thing before our Tri-County Medical Society, and expected at least to provoke a good discussion, but, to my disappointment, the matter was taken as a joke. Nevertheless, so far as I can gather from the literature of the past few years, the tendency, while very slow, is yet decidedly towards an increase in diet for typhoids.

It has been shown beyond question that insufficient nourishment lowers the resistance of an otherwise healthy person, and yet we expect Nature to establish an immunity against the ravages of as infective and toxic a malady as typhoid fever, and insist that she do this on less than half food, instead of coming like men to the aid of Nature, and, by proper and sufficient diet, assist her in overcoming this excessive metabolism and protein destruction, which is shown by May, Wood, Rubner and others, to be increased from 25 to 50 per cent., and, remember, this destruction is going on whether we furnish the repair material or not. If we do not, then our patient will soon be living on his own

vital tissues, consuming that on which his only hope for recovery depends. For I think that we are pretty generally agreed that we possess no specific for typhoid, and that it is only a question of whether the individual resisting power of the patient is able to overcome the germ, and establish an immunity against its ravages. An individual once becoming infected with the bacillus typhosus, there is a battle royal on, the germs of typhoid on one side, supported by their artillery, the toxins, which are weakening the bulwarks of resistance by causing an excessive metabolism with an enormous protein drain. On the other hand, unfortunately, we have no increase in phagocytosis at the time of strife, but only the normal resistance of blood and tissues; therefore, it does seem to me that it becomes our duty to support these patients and keep their resistance to the highest point possible. To do this, it becomes necessary to furnish a diet consisting of from 25,000 to 35,000 calories daily. This diet must be easy of digestion, rich in carbohydrates, and contain sufficient amount of protein to hold our patient in a nitrogenous equilibrium; if, on the other hand, however, we materially reduce this diet, we weaken our patient and aid the disease rather than the patient, for we all know that starvation lowers the resistance of any animal. Some one says, "I don't do that for I give a glass of milk every three hours." Another says, "I give a cup of broth every two or three hours, or an ounce of liquid peptonoids, or a glass of malted milk, or egg albumen, or some of the cold pressed meat juices after omitting milk." I will dispense with the balance of that category and all that belongs to it by saying, and saying on the authority of the best physiologists and laboratory men of our land, that many of these are absolutely worthless, and the others are so nearly so that they are not worth considering. Now, if any of you doubt these statements, I only ask that you give some time and study to the recent investigations along that line. Yet on this so-called nourishment, you expect to support a body where every living cell, every action and function of the organism is from proteid and mineral; without proteid and mineral, in organic combinations, there is no life. In discussing this subject, Dr. Winters, of Cornell University Medical School, says: "Broth is as barren of this constituent as the Desert of Sahara is of vegetation. With life in the balance, to administer as aliment that

which is totally devoid of all vestige of organic constituents is to scoff at Nature's laws.

"Repeated tests in the physiological laboratories have proven that a dog will live longer on pure water than on any animal broth that can be made."

Professor Lusk, in his masterly work on nutrition, in referring to one of Volt's experiments, in which Liebig's extract of beef had been given, says "no account was taken of it, as it had no nutritive value."

Geo. M. Niles, M. D., of Atlanta, writing in the *Journal A. M. A.*, in discussing these so-called foods, makes the following statement: "Another greatly over-rated class of foods are the meat juices, for which fabulous powers have been claimed. Well-expressed juice, obtained from freshly-chopped beef, may contain a fair amount of actual nourishment in form of coagulable proteins and meat bases, and is useful to tide over emergencies or to satisfy the patient that he is being fed. It would take the stomach of a rhinoceros, however, to hold up under a diet of meat juices for any length of time. As to meat extracts, they are a delusion and a snare."

Dr. A. L. Benedict, of Buffalo, says that a broth made at a temperature above 160 degrees Fahrenheit contains absolutely no protein nourishment, and is of about the same dietetic value as urine. Dr. Niles again says: "The dry proprietary foods are equally unsatisfactory, because taken in sufficient quantities they often disturb digestion more than ordinary wholesome food, while the caloric value claimed for them is unreasonable." Dr. Edsall, of Philadelphia, recently weighed a specimen of one of these foods, and says that if it were all nutritive material, it would take from \$1.25 to \$1.50 to buy an amount equal in food value to a five-cent loaf of bread.

Time will not permit, or I could give you virtually the same opinion from a great number of our most learned men.

Now, as to milk, for that is the only one of the ordinary liquid diets that is worth considering, mother's milk is an ideal diet for an infant under ten months of age. In fact, Dr. Winters, of New York, and many others insist that it should be reinforced after the sixth month, and all authorities agree that it is not sufficient after the twelfth month, but should, at least, be reinforced by the carbohydrates. Again,

the proportion of nitrogen in milk to furnish 3,500 calories, about the amount necessary to hold our patient in a nitrogenous equilibrium, would necessitate giving about 200 grams of protein, just twice the amount admissible in an ideal diet, for a healthy individual, although it has been clearly demonstrated by many physiologists that the proteins should be reduced about one-third or even one-half in all fever.

We speak of a liquid diet, and yet we all know that upon entering the stomach and bowels this same milk is quickly converted into hard curds and lumps, the inside of which is probably full of germs on an ideal soil for multiplying, while the enzymes have access only to the outer surface. Milk is often impure, and is always an excellent culture medium for typhoid bacteria. It nearly always produces tympany and a dry, coated tongue, neither of which should be present in typhoid fever.

Coleman, being an advocate of milk, but realizing its deficiency in food value, attempts to reinforce it by adding daily from four to six eggs, and from one to two pounds of milk sugar. My personal experience with this diet has been unsatisfactory, and it seems to be the experience of all that many patients will not take it, and others have diarrhea or tympanites. I wish to state here that mother's milk is the ideal food for the infant, and cow's milk is the ideal food for the calf, but, in my judgment, both are far from the ideal diet for the mature.

Dr. Benedict, of Buffalo, in comparing milk and bread, says that milk contains approximately 12 per cent. of nutrients, the remainder being mostly water; bread contains about 75 per cent. of nutrients. The animal proteids of milk are, if not digested, more apt to putrefy than the vegetable proteids of bread; the milk sugar of milk is not very prone to fermentation, while the starch of bread is, if not digested and absorbed. Milk contains considerable fat, which is liable to become rancid; bread contains very little fat. On the whole, taking into consideration also the possible harmful action after digestion and absorption, it must be admitted that bread is preferable to milk.

In my earlier studies on this subject it appeared to me that to replace this excessive nitrogenous waste would necessitate an increase in the amount of nitrogenous diet, but experience has taught me that as a whole typhoids do not stand a nitrogenous diet well; but, on the other

hand, they do stand a carbohydrate diet well, and that carbohydrates do markedly control the loss of tissue nitrogen.

This conclusion is borne out by the experiments of Dr. Shaffer, who has shown that a liberal carbohydrate diet, in combination with a small amount of protein, may completely, or almost completely, maintain the patient in a nitrogenous equilibrium throughout the typhoid course. Dr. Shaffer says: "It was only when we gave 60, 70, or even 80 calories per kilogram of body weight—between 3,000 and 4,000 calories—that the greatest sparing was observed."

May, after much experimental work, concluded that the increased protein metabolism was in a large part due to the absence of available carbohydrates, and not to a toxic waste of tissues. As to whether a large in-take of carbohydrates prevents the waste of body protein, or whether they replace it after the waste, I am not yet willing to make a statement; but I am, however, ready to assert that, if given properly and in proper amounts, they will either prevent or overcome it, to a large degree, at least, in typhoid fever. From my own experience, and after reviewing these and many other tables, it seems clear to me that a large amount of protein is unnecessary, and is often harmful, on account of its specific dynamic action. After much work of his own, and after reviewing the work of many others, Dr. Lusk says: "It may be concluded that nitrogen equilibrium may be very nearly maintained throughout the course of typhoid fever on a diet containing from 12 to 15 grams of nitrogen, provided an excess of carbohydrates be also administered."

Now, I would like to ask, how many of you are actually trying to hold your patients in this condition of normal resistance, how many of you know the actual food value of the food you give in twenty-four hours? When you order a drug, you know the physiological dose of that drug, and you stop to calculate the amount of the drug given in twenty-four hours, but how many of you stop to calculate the physiological requirements of your typhoid patients, and to form at least an estimate of the amount of calories contained in your food order? Yet, gentlemen, this is certainly of far more importance than the selection of some drug to use.

As to the exact quality or quantity of food used, it is as impossible as it is undesirable to have any fixed rules, for each individual case

must be a law unto itself, and the food should be carefully selected for each case. About the only rules I have are general ones: First, do not give fried food, string beans, cabbage, mushrooms, or any diet that is not easily and wholly digestible; second, feed chiefly carbohydrates, and from 3,000 to 3,500 calories per day if the appetite and digestion will permit. If the patient is taking less than 2,000 calories, better look after the digestion and appetite.

The following is about the diet on which this series of two hundred cases have been fed:

8 A. M.—Bread (plain or toast), but well baked, two or three slices, 45 to 50 grams; butter as wanted, cream of wheat, rice, oatmeal or grit (cooked not less than three hours), one saucer with cream and sugar; cup of tea or coffee with cream and sugar, if wanted, and often one soft boiled egg, or the juice of an orange.

10 A. M.—A glass of buttermilk or cup of vegetable soup and crackers, or something similar.

Twelve o'clock mid-day.—One egg, soft boiled or poached, or a small slice of light meat, two slices of bread; one potato, average size, baked or creamed, one baked apple or its equivalent; butter as wanted; tea or coffee with cream and sugar, if desired.

3 P. M.—One saucer of light pudding or cream of wheat with sugar and cream.

6 P. M.—Vegetable soup, 8 or 10 ounces, with crackers, a handful; bread (plain or toast), two slices, with butter and fruit.

9 P. M.—One glass of buttermilk, glass of custard, sherry, egg, or something similar.

Now, I know full well that two hundred cases are nothing on which to establish a mortality rate; neither are they a sufficient number on which to establish any particular treatment, but if there was half as much danger in this diet as some physicians seem to think, it does look like I would at least have had trouble with some of this series on account of diet. Instead of that, however, they have gone along with very little trouble, always jolly and good natured, eat well and sleep well, get up on from the third to the sixth day of normal temperature, dress themselves, and begin walking around, and, if in the hospital, leave on from the fifth to the eighth day, many of them weighing very little less, a few weighing the same, and an occasional one weighing more than on going to bed.

We probably get our clearest understanding

of the digestibility of the carbohydrates from the work of Prausnitz, Moeller, and Kermauner. Moeller finds that no starch appears in the feces after feeding well-cooked white, rye or graham bread, or potatoes and rice, even though it were fed in pieces. He also found that legumes, when prepared in the form of puree, were completely digested and absorbed, but when not in the form of puree, resist the action of the gastric juices and appear in the feces, or if heavy or imperfectly cooked bread has been eaten, it may also appear in the feces, but not so with good bread properly cooked.

Prausnitz finds that when men are fed on meat, and then on rice, that the composition of the feces does not vary with the diet; such feces he calls "normal feces." After reviewing these tables of Prausnitz, Dr. Lusk says: "It is seen from this that whether the food solids contain 1.5 per cent. N., as in rice, or ten times that, as in meat, the composition of the feces remains uninfluenced. Normal feces result from the eating of any food which is completely digested and absorbed. In all such cases, these feces have the same composition and are derived from the intestinal wall. It is therefore not astonishing that a vegetarian of many years standing produced the same kind of feces when fed on rice as did other men. The same quality of feces has been obtained after giving good bread." In general, Prausnitz finds no difference between digestibility and absorbability of animal and vegetable foods. Meat, rice, and bread from flour are all digested and absorbed.

Voit and Bischoff have proven that the production of feces was not proportional to the amount of food taken. They found that a dog excreting 10.7 grams of feces on 500 grams of meat per day only excreted 11.2 grams of feces on 1,800 grams of meat per day.

Again Lusk makes the following statement: "These common observations would seem to justify the popular opinion that normal feces are made up of the undigested residue of the food stuffs. In truth, however, this is very far from the fact. These feces are chiefly the unabsorbed residue of intestinal excretions."

Again, Boas, in his work on Diseases of the Intestines, says: "It has already been stated that the carbohydrates are more completely digested and utilized than any other variety of nutritive substances. This accounts for their being so

constantly absent from the feces. In numerous examinations of watery extracts of the feces I have only twice obtained a distinct Trommer reaction; with Lugol's solution I have never obtained reaction."

Now, with these facts before me, I can find no good reason for not giving these patients a good liberal diet, but, on the other hand, there seems to be some good reasons for doing it. First, it is our duty to support these patients, and by so doing hold their resisting powers to normal, or as nearly so as possible; second, that their convalescence be cut to a minimum; and last but not least, one of the first things we were taught in physiology was the importance of mastication, not only that the food might be macerated, but that it would stimulate the flow of saliva, gastric, and all of the other juices.

According to Richet and Parlow, in Kirk's Hand-book of Physiology, the drinking of water, milk, and soup will not stimulate the flow to any degree, but the act of chewing will; therefore, it again seems to me, that we should keep these organs as near normal as possible and not allow them to dry up like the desert plant.

The general statement that the digestion of all typhoid fever patients is very much impaired has not been borne out by this series of cases, although the stools have been watched carefully for undigested food. At no time have I been able to demonstrate starch in the feces, and very seldom anything else except an occasional milk curd or a particle of undigested fruit. Neither do the stomach contents show a regular deficiency in anything but hydrochloric acid, and that, as a rule, is not marked unless the temperature is running very high. Again, the muscular action of the stomach seems to be a little below normal in these cases. Both of these difficulties, however, are, as a rule, easily overcome by giving diluted nitro-muriatic acid and one-fortieth grain of strychnine, A. C.

The idea that peristaltic action is increased on a diet of this kind has yet to be proven. After the first few days the above cases have been absolutely free from diarrhea, and, instead, nearly all of them require a laxative each day to secure one evacuation of the bowels, which would not look as though peristaltic action was much increased. Pain or soreness in the bowels is very rare and usually clears up promptly.

THE DIAGNOSIS OF SURGICAL CONDITIONS OF THE URETER BY MEANS OF THE X-RAY.*

By DANIEL D. TALLEY, JR., B. A., M. D., Richmond, Va.

Roentgenologist to the Johnston-Willis Sanatorium.

We wish to emphasize at the beginning of this paper that no X-ray examination of the genito-urinary tract should be made without including both kidneys, ureters and bladder, however strongly the symptoms may point to any one of these organs. There are certain difficulties, however, attendant upon ureteral diagnosis which do not present in kidney conditions, therefore it is believed that the former subject merits a separate discussion.

We have the following means of obtaining evidence in the diagnosis of ureteral lesions:—(1) The symptoms and physical examination; (2) the urinalysis; (3) the cystoscope and ureteral catheter; (4) the X-ray.

(1). Symptoms and physical examination: However suggestive these may be, we are not justified in making a positive diagnosis without going further, as, in order to afford the patient relief, we must decide whether the trouble is in the genito-urinary tract, and if so, in what part of the tract it is situated. It is impossible to decide this from the clinical picture alone; the latter should serve simply as an indication for further examination.

(2). Urinalysis: Blood or pus in a specimen of urine (in the female this should be catheterized for conclusive evidence) should always lead us to make inquiries as to its origin. If this is not clear, a radiographic examination should be made, as calculi are often found in the genito-urinary tract without giving symptoms which would suggest them. In ureteral inflammations it is usual to find blood and pus in small quantities.

(3). Cystoscope and ureteral catheter: While these instruments alone often are not precise in the diagnosis of genito-urinary conditions above the bladder, in conjunction with the X-ray they are invaluable in confirming or establishing a diagnosis. The field of radiography in both renal and ureteral conditions has been greatly increased in recent years by what is known as pyelography. This consists in injecting a solution of a silver salt opaque to the X-ray through

the ureteral catheter into the pelvis of the kidney and then making radiographs with the material *in situ*. The preparation used by us is collargol. In this way we are able to outline the pelvis of the kidney and the ureter on the plate and draw conclusions therefrom. As regards the ureter, its course, size and shape may be determined, so that where we were at one time able only to diagnose the presence of calculi, we may now discover kinks or tortuosities, the presence of hydro-ureter from an obstruction and other abnormalities (double ureter, etc.), to say nothing of giving more precise evidence in regard to calculi.

As to the conditions which we are called upon to diagnose, the presence or absence of calculi is the one which confronts the roentgenologist most frequently, and which often presents considerable difficulty. Where this condition is suspected, the symptoms may or may not be the classical ones observed in renal colic. As above stated, ureteral stone usually shows pus and blood in the urine in small amounts, but if the ureter be completely blocked by the stone, these findings may be absent. The kidney and upper portion of the ureter may be shown on the same plate. It is uncommon to find a calculus above the pelvic brim for reasons stated below.

In examining the plates of the pelvic portion of the ureter we encounter many difficulties. This is the most common location for calculi to be found, as there are two points of normal constriction in the calibre of the lumen, one at the vesical opening and one at or just below the brim of the pelvis. Many shadows simulating ureteral calculus may be found in this region. Among these are the shadows of vein-stones (phleboliths), arterial plaques, calcified glands, ossifications in the pelvic ligaments, concretions in the appendix, etc. Many of these bodies usually cast rather characteristic shadows, so that if one is familiar with the reading of pelvic radiographs it is not difficult to exclude them. Sometimes, too, the shadow of a ureteral calculus is so characteristic, and its position corresponds so closely to the point of local symptoms, that a diagnosis may be made without much trouble. In many cases, however, doubt may exist as to whether we are dealing with a stone in the ureter or with one of the other bodies above referred to, and here the case should be cystoscoped if possible, and the

*Read before the Tri-State Medical Society of the Carolinas and Virginia, at Columbia, S. C. February 21-22, 1912.

ureteral catheter passed in order to secure confirmatory evidence.

Two different procedures may be used to ascertain whether or not there is a calculus present. The making of stereoscopic radiographs with the wire stylett or leaded ureteral catheter in place has in our hands been most successful. If the questionable shadow lies at the tip of the shadow of the catheter or closely adjacent to any part of its course, we are justified in making a positive diagnosis of calculus. This method will be found satisfactory in most cases, but Braasch, of Rochester, has shown that in the case of a stone lying in a diverticulum of the ureter, this method would not be satisfactory, as the shadow of the stone would not be tangential to that of the catheter. He therefore recommends the injection of collargol into the ureter as the most reliable method, the objection just mentioned being thus obviated.

Other conditions presenting in the ureter may be anatomic or pathologic stricture, kink, dilatation and anomalies. These lesions are not difficult to show on the plate if the radiographic technique and collargol injection be properly performed. It is important that the radiographer and the cystoscopist co-operate with one another to the fullest extent possible. In conjunction with Dr. Lawrence T. Price, of Richmond, I have had the pleasure of doing a good deal of this work at the Johnston-Willis Sanatorium, and it has been our fortune to clear up many diagnoses which would otherwise have remained in doubt.

118 East Franklin Street.

RHEUMATIC DISEASES OF EYE AND THROAT.*

By C. R. DUFOUR, Ph.D., M.D., Washington, D.C.
Clinical Professor Ophthalmology, Otolaryngology, Rhinology
and Laryngology, Georgetown University
Medical School and Hospital.

The term rheumatism is a remnant of ancient nomenclature. It is often employed to designate certain morbid conditions, many of which are in no way related to one another. It is frequently applied to fleeting pains in different parts of the body, and as such pains were often produced by exposure to cold and wet, they were called rheumatism. The joints were sometimes affected in this disorder. For this reason, the term rheumatism was loosely employed to designate joint inflammations in general, so that at

the present time rheumatic diathesis is a term used to designate a predisposition to articular and muscular involvement, especially when accompanied with pain. It is the opinion of the writer that muscular rheumatism or myalgia is a neuritis of the small muscular nerves.

The throat and eyes are frequently affected by the so-called rheumatic diathesis, and for want of a better term and better knowledge of the pathology, we still employ it, and speak of rheumatic sore throat, rheumatic iritis, etc. The chronic follicular pharyngitis, or clergyman's sore throat, is due to the gouty and rheumatic diathesis, together with the irritation caused by smoking, working in an irritating atmosphere; also from improper use of the voice. Tonsillitis was formerly thought to be caused by the rheumatic diathesis, but is now known to be caused by infection, the result of the invasion of certain pathogenic bacteria into the crypts.

There is one condition of the throat of which I would speak more fully—viz.: the rheumatic sore throat. This seems to be a true rheumatic condition, as we now use and understand that term.

Rheumatic sore throat appears in two forms, acute and chronic. The acute condition is often accompanied with constitutional symptoms, and much pain. It is mostly found in those who are of the uric acid diathesis.

The anatomical and pathological findings are redness and some swelling, as a rule not so great as in simple sore throat. The pain in acute rheumatic sore throat is greater than the appearance would indicate.

The same condition which causes rheumatism in other parts of the body produces rheumatic sore throat.

It is usually found the patient has had attacks of rheumatism at different times, either muscular or articular. The attack comes on suddenly, the throat becoming very sore; constitutional symptoms soon follow. These symptoms continue for two or three days, when they may disappear and the muscles of the back or neck become painful, or the pain may appear in any of the muscles of the body. The pain in the throat is quite severe, especially when swallowing. One of the principal symptoms of this condition is the shifting of the pain from the throat to different muscles of the body. It usually occurs that there is a slight rise in temperature, from one to three degrees; the pulse

*Read before the Medical Society of Georgetown University, February 10, 1912.

rate is also raised. Upon examining the fauces, there will be found redness, slight swelling, sometimes the sides of the pharynx will be the only part showing any swelling, and then only in longitudinal stripes behind the pillars of the tonsils; the other portions of the throat show but little congestion.

Even though the pharynx shows but little inflammation, the patient suffers very much. The only condition which simulates acute rheumatic sore throat is simple acute sore throat. The distinguishing symptoms are that in the former there is much less redness and swelling, the attacks come on suddenly, there is probably a history of former attacks, and the pain going to other muscles of the body. This phase of sore throat continues from a few days to about a week.

In regard to the treatment, those having a rheumatic diathesis, which has manifested itself in the throat, should be careful to wear the proper clothing, keep their feet dry, and avoid undue exposure. At the beginning of the attack, the patient should be placed in a warm room, a saline laxative given, and sodium salicylate, aspirin, acetate of potash, should be used in proper doses.

An analysis of the urine should be made, looking especially if there is proper elimination of the solids. I believe that water should be drunk in generous quantities, not necessarily lithia water, good distilled water, for I think it will flush out the system, and probably dissolve out more solids than other waters.

In case of severe pain, anodynes may have to be used. The diet should be regulated, and easily digested food should be given; fruit juices, especially lemon juice, is of benefit. Sweets, red meats and starchy foods should not be given. Warm applications should be used to the throat, both external and internal. Hot gargles of bicarbonate of soda, or a powder composed of bi-carbonate of soda, salicylate of soda and bromide of potash, about equal quantities, dissolved in a small cup of *hot* water, and used as a gargle every few hours. I have found this an excellent adjunct in combating this trouble.

The chronic rheumatic sore throat is also a painful condition. It affects the larynx, pharynx, fauces, sometimes the hyoid bone and the trachea. It occurs in the spring and autumn, but is met with at all seasons of the year, and in those having a rheumatic diathesis. The

throat shows little congestion. It comes on either very gradually or suddenly. The chief symptom is pain, localized in character, mostly referred to the region of the hyoid bone. Frequently the discomfort is felt only on one side.

The base of the tongue is another spot the pain and discomfort is felt. Pressure increases the pain, phonation and deglutition often increase it, and it often disappears when eating. The sensations may persist for weeks, or they may shift from place to place. All kinds of sensations may be complained of, such as burning, itching, dryness, fullness, etc., except actual pain. Speaking usually fatigues, but as a rule the voice is not affected. There is no rise of temperature. In those cases where the larynx is involved, there will be some cough.

Chronic rheumatic sore throat is to be distinguished from chronic follicular tonsillitis, enlarged lingual tonsils, neuralgia, glossitis, pharyngitis, etc. By inspection we can tell if the enlarged glands are present, but cannot always tell if they are causing the pain. In conjunction with the treatment for the glands, the anti-rheumatic treatment may be added.

The principal points for diagnosis are the pain, which changes with the weather, the existence of the rheumatic diathesis, and the absence of any distinct physical signs.

With tubercular and syphilitic sore throat there is almost always ulceration. There is no reason why they should be mistaken for this affection.

Tobacco sometimes causes a sore throat; in this trouble there is a condition of the mucous membrane which has somewhat the appearance as if it had been brushed over with solution of nitrate of silver. There is a burning sensation of the throat, which disappears when the tobacco is discontinued.

Rheumatic sore throat is sometimes difficult to distinguish from neuralgia. In the former there is a slight congestion; in the latter, none. In neuralgia, pressure does not increase the pain, and the change from clear to cloudy weather does not usually affect it; in rheumatic sore throat pressure usually increases it as does the change of the weather. This disease being chronic is likely to continue for months.

The treatment in this disease, like the acute condition, must be directed toward prophylaxis. The patient must be properly clad, and not be exposed to bad weather. The diet must be reg-

ulated, only easily digested foods being given. A good eliminative treatment must be carried out. Local application to the throat amounts to but little.

Potassium iodide, piperazine or salicylates should be used according to the preference of the physician. Salol and fluid extract phytolacca are also of benefit in some cases. Salicylate of methyl is also of benefit, internally, and locally. The throat conditions are but a manifestation of a rheumatic diathesis, which must be combated according to the various methods mentioned.

The affections of the eye caused by rheumatism are iritis, cyclitis, inflammation of Tenon's capsule, and keratitis.

Rheumatic iritis is one of the most common eye affections caused by rheumatism. It usually affects only one eye; there is considerable pain, which is increased by pressure and on moving the eye; inflammation and lachrymation are always present; there is sometimes an exudate in the anterior chamber. Hemorrhages may also occur. These symptoms occur in iritis from other causes, but they are more frequent in rheumatic iritis. This form of iritis is synchronous with the joint affection or alternates with the latter.

Cyclitis is an intensified iritis, so to speak. The symptoms are about the same, but more severe.

Scleritis, and inflammation of Tenon's capsule, and sometimes glaucoma are caused by rheumatism. Parenchymatous keratitis is sometimes associated with articular rheumatism, but it does not differ from the same disease in congenital syphilis.

Rheumatic endocarditis is the most frequent cause of embolic processes in the eyes and brain, particularly benign emboli, which act mechanically and excite very little, if any, inflammation. There is no doubt in my mind that acute articular rheumatism is an infectious disease. The micro-organisms localizing in the joints, the serous membranes, endocardium, and the eye, will produce inflammatory conditions, which may be serous, plastic and sometimes purulent in character.

The methods which I have enumerated in treating rheumatic sore throat, constitutionally, should be adopted in treating the eye diseases from the same cause. The local treatment of the eye must be governed by the nature of the inflammation. In iritis and keratitis, atropine

and heat should be used; in glaucoma, eserine and cocaine; in scleritis, solution of boric acid and suprarenalin chloride.

1343 L Street, N. W.

AN ADDRESS ON PORTSMOUTH, VA., AND ITS RELATION TO THE U. S. NAVAL STATION.*

By JOSEPH GRICE, M. D., Portsmouth, Va.
Vice-President, Medical Society of Virginia.

Mr. Chairman, the Surgeon-General of the U. S. Navy and Gentlemen:—I have been requested by the President of this Society to make a brief statement regarding the city of Portsmouth and its relation to the U. S. Naval Station located there.

No doubt the Surgeon-General and others present are familiar with the history, growth and present conditions of the city of Norfolk, but perhaps they are not aware of the conditions along similar lines in the city of Portsmouth.

This may be due to the overshadowing of the lesser by the greater city, and yet Portsmouth is in direct and closer contact with the Naval Station, the Navy Yard and Naval Hospital being almost surrounded on the land side by our corporate limits.

I must say that the people of Portsmouth have the kindest feeling towards, and take the deepest interest in the welfare and prosperity of the Naval Station, and we trust this feeling is reciprocated by the Naval authorities.

Portsmouth, which has the distinction of leading Virginia cities in growth of population in the past ten years, was first founded by an act of the General Assembly, February 25, 1752, in the reign of King George II of England, and forty-seven years after Norfolk was created a borough. The preamble of the act reads as follows:

"I. Whereas, it hath been represented to the Assembly that William Crawford, of the County of Norfolk, gentleman, hath lately laid out a parcel of land on the south side of Elizabeth River, opposite the town of Norfolk, into one hundred and twenty-two lots, commodious streets, places for a courthouse, market and public buildings, for a town by the name of Portsmouth, and made sale of most of said lots to divers persons who are desirous to settle and build thereon speedily: and also that the said

*Address delivered before the Norfolk County Medical Society and Surgeon-General C. F. Stokes, U. S. Navy, guest of the Society, April 1, 1912.

town lies very convenient for trade and navigation:

"II. Be it enacted," etc.

Thus Portsmouth was brought into being and continued to grow and prosper.

On December 9, 1857, a meeting of the citizens was held to consider the propriety of incorporating Portsmouth as a city, and a petition was formulated to be presented to the Legislature of Virginia, in consequence of which the act incorporating the town of Portsmouth as a city was passed March 1, 1858.

In April, 1858, George W. Grice (my father) was elected the first Mayor of the city. The population at that time was less than ten thousand, the people were dependent upon cisterns and wells as a means of water supply, and there was no sewerage system.

Navy Yard.—Just before the outbreak of the war of the Revolution, the British government established a marine yard, for the use of their navy, on the site of the present navy yard at Gosport, (as that part of Portsmouth was called) having, as is stated in a letter on file in the U. S. Navy Department, written in 1824, selected this point after a careful survey of all the ports within their domains in North America, as the most eligible situation for a naval station.

The name of Gosport was doubtless taken from Gosport, near Portsmouth, England, where one of the most important of the British dockyards is located. Scarcely had the British government commenced its work for the establishment of a naval station, when the Revolution began, and the yard, together with the adjoining property of Andrew Sprowel, the British navy-agent, was confiscated by the State of Virginia.

Virginia immediately commenced preparations for the upbuilding of a navy and vigorous measures were adopted to that end. Several vessels were built or purchased, and a rope-walk was constructed at the Gosport yard. The Virginia navy was employed mainly for the defence of the bays and rivers of the State. Commodore Barron was appointed the commander-in-chief, being styled "Commodore of all the armed vessels of the Commonwealth." His two sons, Samuel and James Barron, and also Richard Dale, all afterwards distinguished officers of the U. S. Navy, served under his command. At the conclusion of the war, the State Navy was disbanded. On March 27, 1794, by an act entitled

"an act to provide a naval armament," the President of the United States was authorized by Congress to procure, by purchase or otherwise, equip and employ, to protect our commerce from the Algerians, four ships of forty-four guns each and two ships of thirty-six guns each, and to appoint the requisite number of officers to command them.

These were the days of wooden vessels, and as Portsmouth was actively engaged in ship building and there were many private yards here in which skilled workmen were employed, it was determined to build one of these ships at Portsmouth, Va. The marine-yard at Gosport was loaned to the National Government for this purpose by the State of Virginia. By an act of Congress, approved April 30, 1798, a separate department was created for the administration of the affairs of the Navy. Mr. Benjamin Stoddert was appointed the first Secretary of the Navy.

On January 20, 1800, the Secretary of the Navy opened negotiations with James Monroe, Governor of Virginia, for the purchase of the Gosport yard by the U. S. Government. And on June 15, 1801, a deed of conveyance was executed. Thus the shipyard at Portsmouth, Va., became a U. S. naval station and its subsequent history is too well known to you to require repetition. It is interesting to note that five different flags, representing as many different powers, have floated over its destiny: the British, Continental, United States, Virginia, and Confederate flags.

The ground on which the Hospital stands was conveyed to the U. S. Navy in 1827. The grounds and grove include about seventy-five acres. The Naval Hospital building was commenced in 1829, and not fully completed until 1836.

Portsmouth is located in the Atlantic Coastal plain, which is characterized by a broad, flat expanse of country, with an average elevation of about twenty feet above sea level and along the river and inlets, about ten feet.

Water Supply.—Portsmouth is fortunate in having an abundant supply of pure water. The source of it is Lake Kilby, a natural lake, about twenty miles southwest from the city, having an elevation of forty feet above sea level and eighteen feet above tide-water. The water shed consists of virgin woodland and farm lands twenty-one square miles in extent; it is frequently

thoroughly inspected. In addition to Lake Kilby, there are three other lakes close by: Lake Cahoon, Lake Phillips and Burnt Mill Lake, which are held in reserve for future use. The total area of the combined watershed is computed to be one hundred square miles, and it is capable of furnishing adequate water supply for a city of five hundred thousand inhabitants.

Lake Kilby is a picturesque spot, the main body of water being a broad expanse, surrounded by high banks. The volume of water in the lake is usually far in excess of the demand made upon it and there is a large overflow during eight months in the year, thus giving us a supply from moving water, rather than from a stagnant pond. There is a depth of sixteen feet of water at the intake pipe from which point the water is lifted, by a low pressure service pump of six million gallons capacity in twenty-four hours, to the sedimentation basin. The chemical analysis of the natural (or raw) water shows it to be very low in mineral matter, with some suspended organic matter, principally of vegetable origin.

The following is the average of a number of examinations made, stated in parts per million: free ammonia .052, albuminoid ammonia .264, nitrates .01, nitrites none, chlorine 2.8, oxygen consumed 9.6, hardness 1.4, while repeated bacterial tests for the colon group are negative, showing the water to be free from deleterious substances.

Filtration of the water is necessary, however, to eliminate the suspended organic matter and free it from the slight vegetable odor and brownish color. The system of filtration used is what is known as the "rapid mechanical filter," in contradistinction to the "slow sands filter," and is dependent upon the formation of a flocculent gelatinous mass which settles to the bottom when the water is allowed to stand, carrying with it the suspended particles of organic matter. As the water is pumped from the lake aluminum sulphate is added, and also lime, on account of the natural low alkalinity of the water. It then passes over twelve aerating tables and is allowed to settle in the sedimentation basin from which it flows by gravity to the sand filters. These are built of concrete in batteries of ten and have a maximum capacity of six million gallons a day. At the present time the daily output is four and one-half million gallons.

The finished product is beautiful, clear, and odorless. Tests are made at the filtration plant for color, reaction, excess of alum, and number of bacteria per cubic centimeter.

The water is conveyed to the city through two twenty inch cast iron pipe lines, being pumped from the plant by a six million gallon high pressure "Prescott" pump. At this end of the line, the water passes through two aerating fountains with four foot tables into a five hundred thousand gallon reservoir. The water is then pumped through the city and suburbs from the Portsmouth station by a five million gallon "Worthington" pump, having a six million gallon "Jeansville" pump in reserve. A seven hundred thousand gallon stand pipe gives equalization of pressure, and boilers and machinery in both pumping stations are in duplicate, that is to say, there is a reserve force equal to the working force always available.

This water system not only supplies the city of Portsmouth but the suburbs as well—Port Norfolk, Pinners Point, Mount Hermon, Prentiss Park, Navy Yard, Marine Barracks, Naval Hospital, Light house and Buoy yard.

There are approximately seventy miles of water mains in Portsmouth and the Western Branch district of Norfolk County.

Sewerage System.—In a flat country like this, the problem of drainage is a perplexing one and often taxes the ingenuity of the sanitary engineer. The sewerage system used in Portsmouth has proved well-suited to local conditions, and utilizes the force of gravity and compressed air to move the sewage.

There are twenty-five miles of main sewers and fifteen miles of house laterals in the city, and also there is a double collateral tile soil drain co-extensive with the sewerage system, which has greatly lessened the amount of water held in the sub soil. Many cellars and basements are now dry which were wet and untenable before the establishment of this drainage system. The sewage from the houses drains by gravity into large brick chambers constructed at five different points in the city. The sewage is then lifted by compressed air, by means of the "Shone Automatic Ejector," to a higher level, from whence it again flows by gravity to another ejector chamber or to the sewer outlet.

No storm water or surface drainage is allowed to enter into the sewerage system. The volume

of fluid carried by the sewer is computed to be one and one-half million gallons per day. The central pumping station is suitably located and is equipped with powerful pumps and all necessary machinery in duplicate. But only *air* is pumped, thus avoiding contamination with the sewage itself. The outlets for ultimate discharge of the effluent are four in number and all extend out to the Port Warden's line and empty into the main channel of the Elizabeth River. The cost of the system was \$200,000; it was installed in the old wards of the city in 1895-6 and extended to the Fifth ward in 1909-10.

At this latter period, by permission of the naval medical authorities and Secretary of the Navy, Newberry, one of the discharge mains was run through the Hospital reservation to the end of the pier, and this now furnishes the Hospital building with a sewerage outlet to deep water.

The city has come into prominence within the last few years as an industrial community, owing to the unexcelled geographical location, being situated on the Western or mainland side of a large and commodious land locked harbor from the surrounding wharves of which nearly 15,000,000 tons of freight were shipped, and 650,000,000 feet of lumber handled during 1910. The annual coal shipment alone represents a market value exceeding \$20,000,000.

A depth of water of from thirty to thirty-six feet to the ocean, eight large railway systems and twenty-six steamer lines now having this section as a base, reaching out in every direction to the principal markets of the country, both on land and sea, are factors responsible for the very rapid industrial advancement of this city and section.

Besides its industrial features, Portsmouth is in the center of the famous truck-farming region of Tide-water Virginia. Over five million packages of early vegetables were shipped to the Northern markets from this territory during 1911, the estimated value of which approximates \$12,000,000.

The U. S. Navy Yard, Naval Magazine, Naval Hospital, and Marine Barracks, all of which are on the Portsmouth side of the river, cover an area of 450 acres, and give employment to upwards of 3,000 civilian wage earners, while the commissioned and enlisted force represent 3,000 more, making the government disburse-

ments for labor and salaries total, approximately, \$4,000,000 annually, with as much more expended for food, raiment and material.

Streets.—There are 10.85 miles of asphalt and brick paved roadways and forty-eight miles of paved sidewalks. The paving and grading is under the supervision of a competent civil engineer, and street cleaning is done by the street inspector and his constantly working force. Garbage and trash are systematically collected and destroyed at the incinerator.

The *incinerator* is of the "DeCarie" type and cost \$25,000. It has a capacity of destroying 30 tons per day, and receives all garbage, trash, etc. During 1910, 4,871 cartloads of garbage, estimated at 2,435 tons, and 2,727 cartloads of trash, estimated to be 681 tons, were destroyed. The total cost of operating the incinerator for the same period, including labor, fuel, oil, etc., was \$2,076.67, or sixty-six and two-thirds cents per ton of material destroyed; and, if interest on the cost of the plant be added, the cost per ton will be ninety-six cents.

Portsmouth is fortunate in having at this time an active, progressive and courageous Mayor, Hon. J. Davis Reed, who is ever watchful of the city's interests and takes an active part in all movements conducive to the welfare of the community.

The legislative branch of Portsmouth's government consists of a Common Council and a Board of Aldermen.

The Board of Health is composed of five members from different wards, and the health officer is the executive officer of the board. The Health Department will be given modern quarters in the new Municipal building in course of construction.

The Board, with the authority of the Councils, has adopted such regulations for the handling of contagious diseases as are in conformity with the best modern authorities, and has instituted such procedures as are considered essential by sanitary scientists, namely, the registration of births and deaths, compulsory reporting of contagious and communicable diseases, inspection of the premises by a sanitary officer, printed circulars of instruction handed to those in charge of the case, placarding of houses, disinfecting apartments after recovery or removal of the patient, and war on flies and mosquitoes.

There has also been established a well-

equipped and carefully managed bacterial and chemical laboratory for the routine examination of throat cultures for diphtheria, of sputum for tubercle bacilli, blood for malarial parasites, and the Widal reaction of typhoid fever.

Examination is made of the city water, of milk samples, and such articles of food as the inspector looks upon with suspicion. Swimming in the river near the sewer outlets is forbidden. Soft crabbing in the creeks and marshes into which the city drains is prohibited, and oystering or the "floating" of oysters in the inner harbor is not permitted. There are fourteen licensed dairies supplying milk to Portsmouth from three hundred and sixty-eight cows. Systematic inspection of the dairies is carried out and a record kept by the score cards furnished by the U. S. Department of Agriculture. The average score for 1911 was 80.05—the city standard being 75.

The cattle are tested for tuberculosis and the milk furnished must not fall below three per cent. butter fat, twelve per cent. total solids, and show a specific gravity of at least 1,029.

The death rate for 1900, based on a population of 20,000, was 18.4. The death rate for 1910, based on a population of 35,000 was 15.7. Of this, the rate for whites was 11.6, and for colored 22.5.

Historically, Portsmouth is not without interest. Commodore James Barron, who is remembered on account of his duel with Commodore Stephen Decatur, is buried in the churchyard of old Trinity Church, as are a number of others well known in our National history. The old Dale homestead, now known as the Guthrie home, was built by Richard Dale, one of John Paul Jones' first lieutenants in the war of the Revolution, and subsequently commandant of the navy yard in this city. The stone dry-dock was one of the first built by the government, and the first to receive a battleship. The line of battleship "Delaware," seventy-four guns, which was built at this yard, 1817-1820, was docked here in 1833.

The U. S. Naval Hospital is on the site of old Fort Nelson of Revolutionary fame. During the Spanish-American war, Admiral Cervera and many of the wounded from his fleet were cared for at this hospital.

The relations existing between the Naval authorities and the local people have always been of a most friendly nature, except perhaps dur-

ing the Civil War and the dark days of reconstruction immediately following.

Among the officers who have been stationed here there are many that are remembered for their courtesy and congeniality. But I cannot refrain from mentioning the names of Dr. Thomas Williamson, who was in charge of the Hospital in the fifties; Commodore George Brown, Commandant, 1886-1889, and again 1893-1897; Admiral P. F. Harrington, 1904-1906; and Medical Director R. C. Persons, 1904-1906. These men will ever live in the hearts of our people.

518 Middle Street.

Analyses, Selections, Etc.

The Diagnostic Value of Intradermal Injection of Gonococcus Vaccine.

Julius London, New York, says that Bruck, in the *Deutsch. Medicin. Woch.*, 1909, describes a reaction for gonorrhea obtained by vaccination of the patient with gonococcus vaccine according to the technic of von Pirquet. Irons, of this country, has also called attention to this type of reaction.

In testing a number of cases for the reaction by vaccination with gonococcus vaccine in saline solution, the author's results were negative, but in the same patients the same vaccine injected into the skin showed a beautiful result similar to the Stich reaction obtained by Hamburger and by Manheimer, of New York, in tuberculin diagnosis.

In this preliminary report the author calls attention to the diagnostic value of this method of intradermal injection of a few drops of gonococcus vaccine—50,000,000 to 100,000,000 per cubic centimeter in saline solution. In positive cases, an area of erythema from one to three inches in diameter develops, in the center of which there is a small red papule, a little deeper in color than the surrounding areolo. This central papule is really composed of two parts, one at the site of the needle-puncture and the other at the periphery of the injection.

Normal saline solution may be used as a control, but it is not necessary, as the author has employed a few drops of a solution containing 500,000,000 per cubic centimeter without any reaction in negative cases. Oftentimes the en-

tire area of reaction is slightly elevated. Adjacent lymph-nodes are not enlarged.

In negative cases there is no reaction or yellowish discoloration at the site of injection. The reaction appears in from twelve to twenty-four hours, and fades in from twenty-four to forty-eight hours, the central papule being the last to disappear.—(*American Medicine*, April, 1912.)

Body Cells and Food Substances.

"The cells of our body never learn what the character of the food which we eat really is." With this sentence, delivered at a recent meeting of Swiss men of science, Professor Emil Abderhalden has concisely defined a modern point of view on nutrition which is rapidly becoming prominent. Before they leave the alimentary tract the food stuffs which we eat are disintegrated into common fragments that serve as the real nutrients of the organism. Complex carbohydrates are resolved into indifferent sugar molecules like those of glucose; fats are split into glycerol and fatty acids; proteids yield an aggregation of characteristic aminoacids. Indeed, the main function of digestion is to put these comparatively simple "building-stones" at the disposal of the internal tissue-cells, so that they can select, synthesize or further rearrange them, as the special functions require. Whether it is the proteins of meat or of cereals that we ingest is, after all, largely a matter of indifference to the organism, for they all furnish similar digestion fragments so long as the alimentary processes perform their duty. It is not meat or wheat, but aminoacids that are offered for nutritive appropriation. Quoting Abderhalden again:

"The gastrointestinal canal with its digestive ferments forms a mighty barrier against the outer world. That which is distinctively foreign cannot penetrate into our bodies."

If this conception is correct, namely, that our metabolic activities are really carried out at the expense of comparatively definite, related and unvarying disintegration fragments of the widely divergent food-stuffs, it ought to be quite possible to fulfil the nutritive needs of the organism with mixtures of these fragments supplied in places of ordinary highly complex food. The experimental evidence that this can be done is rapidly accumulating. Animals have been maintained in nutritive equilibrium for considerable periods when fed on mixtures of predigested food-stuffs. Even more suggestive, how-

ever, is a very recent study of the metabolism of growing animals fed with meat or the products of the complete digestion of meat, respectively. The dogs showed not only maintenance, but typical growth as well, on the products which were offered in the form of digestion fragments. There is a tendency for the occasional "escape" of some of the latter unchanged in the urine; but this "alimentary aminosuria" is not widely different from the explicable alimentary glycosuria which often follows the administration of undue amounts of sugars.

These newer facts of nutrition help us to understand why substances not widely removed in character from those which serve as foods may nevertheless awaken such marked reactions in the organism when they are introduced unchanged directly into the circulation. To the cells, these complexes in their undigested form appear as objectionable foreigners, and the untoward effects which we often perceive are the outcome of the struggle to master or utilize a stranger to the living protoplasm.—(*Journal Amer. Med. Assoc.*, Feb. 24, 1912.)

Enemata and the Murphy Drip.

E. D. Martin, New Orleans, speaking of the employment of enemata, says that for the purpose of producing an evacuation an amount sufficient to distend the rectum of some soapy or oily substance should be administered, and administered gently, but rather rapidly; if to be retained, slowly and with as little pressure as possible; if for absorptive purposes, not faster than from 50 to 100 minims per minute, and with an elevation of the reservoir of not more than four and one-half inches above the rectum. as any point above this will produce great discomfort to the patient and the rejection of the fluid. The capacity of the rectum varies with age. For an infant, one-half to one ounce; for a child of from two to five years, two to six ounces; from five to fifteen years, six ounces to one pint; for an adult, one to two pints.

The writer quotes from a letter of Murphy as follows:

1. That the natural condition of the large intestine is one of distention.
2. That the large intestine is a "dryer" of the alimentary material.
3. That all of the feces passes into the large intestine in a fluid or semi-fluid state and is

dried—that is, the fluid is extracted in the large intestine.

4. That the material in the large intestine is always held under low pressure or tension; when gas is formed or comes into the large intestine, producing a higher tension, it is immediately expelled.

5. On this basis it has been learned that bland, isotonic fluids are rapidly absorbed by the large intestine.

6. If the tension is increased beyond a four or seven-inch hydraulic pressure, it causes a spasm of the bowel and discomfort relieved only by expulsion of the material.

7. It does not matter how fast the fluid is permitted to flow in. If the plus pressure is only four inches hydraulic, it will not be expelled by the intestine. Furthermore, it will not flow in rapidly with that pressure, as this is just about the intra-abdominal tension.

8. Normal salt solution, plain or with a teaspoonful of powdered corn-starch added, can be admitted and will be absorbed in quantities ranging from sixteen to thirty pints in twenty-four hours if the plus pressure does not exceed four inches under normal physiologic conditions, or an inch or two more in inflammatory conditions, which cause the abdominal tension to be increased.

9. It can, therefore, be readily seen that salt solution admitted by the drop or any other method into the bowel, accumulating there attains a pressure equal to the hydraulic pressure in the bag or can. And if the can is elevated more than six or seven inches above the level of the buttock or rectum, the pressure will become too great in the bowel—quickly if there is no clamp or restriction on the tube; slowly if the tube is restricted to a drop condition—but eventually in both so as to cause expulsion of the fluid.

10. If gas is formed in the large intestine when water is being admitted, the bowel will endeavor to expel it; and unless the tube is large and a means of rapid escape provided for, the gas with the fluid will be expelled.

11. A large tube, of three-eighths to one-half inch in diameter, is, therefore, essential to the proper administration of rectal salines. With no restriction or clamp on the outlet arm of the tube, the rapid expulsion can take place back into the can if the latter be low.

12. Any type of can or bag syringe can be

fitted so as to have the material admitted drop by drop, and yet have a provision for its free return into the reservoir, with or without gas, should the tension on the intestine become too great or should the patient strain. From the reservoir leads a tube provided with a cut-off and a glass syringe from which the piston has been removed and a pipette substituted. This is connected with one arm of a Y-tube, the other arm having the escape tube leading to the top of the reservoir, while the main arm is in connection with the rectal tube.

13. Four ounces or eight ounces given in twenty-four hours would be very much like putting on a postage stamp where a Mason-apron-size poultice is needed. It is inefficient, unscientific, and a delusion to the doctor and to the patient.

14. The portion of the tube within the rectum may be of soft or of hard rubber or of glass. If the last two, it should be so flexed that the outer end will not compress against the mattress and cause counter-pressure by the inner end upon the rectum. The tube should have good-sized openings. If multiple, they should be one-eighth inch in diameter; if single, a third of an inch, so that particles of feces and the fluid may return to the can when the pressure exceeds the desirable tension.

15. Various devices have been resorted to in order to keep the fluid warm. Thus, there may be employed a tin can covered with asbestos, perforated to allow the passage of the inlet tube, and filled with water. If the water in the can be heated to 105 degrees F. at the beginning of the process, and the can wrapped in a Turkish towel, or its equivalent, the heat will be retained, provided the tube is kept covered with bed-clothing.

16. A pint and a half of normal saline solution is given every two hours, and the can is so elevated that about an hour or an hour and a quarter is required for that quantity to flow in if arranged for the drop-method. This means about forty-five drops in fifteen seconds.—(*New Orleans Medical and Surgical Journal*, May, 1912.)

Treatment of Gout.

A. E. Taussig, in a review of the recent literature of gout, brings attention to several theoretically interesting and practically valuable points. Gout is no longer regarded as due to an over production of uric acid, but rather to a

faulty elimination of that substance. Uric acid is derived exclusively from the disintegration of substances contained in the nuclei of cells, whether these be contained in the ingested food or in the cells of the body which have undergone destruction. In gout the ability to handle uric acid seems diminished in every respect. The result is an accumulation of mono-sodium-urate in the blood until sooner or later the limits of solubility are passed and there is a deposit in crystalline form of the urate in the subcutaneous tissues or joints. This retention of uric acid may be watched in the urine. Normally when a person is given a large amount of uric acid forming (purin) food, there is a prompt and rapid elimination of urates in the urine. In gout this elimination is tardy and sluggish. At only one time does the urate content of a gouty patient tend to become high, and that is during the acute attack. At this time it may be increased to extraordinary amounts. These characteristics are very valuable in diagnosis. Tausig believes that the use of colchicum should be discontinued, as it does no permanent good and may do considerable injury to the heart. A purin-free diet is the only rational treatment to be employed. The potassium salts in potato and rice make these articles valuable in the dietary. Treatment with large doses of hydrochloric acid, from 50 to 90 drops of the concentrated acid daily, well diluted, has been found of immense value in the hands of some men. Kionda and His have recently used radium emanations with wonderful success, and declare that the beneficial effects of natural waters are in direct proportion to their radio-activity. The action of the radium seems to be in its ability to change the less soluble urate salt into the more soluble, and thus facilitate its elimination.—(*Interstate Med. Journal*, Dec., 1911.)

Failure of the Colon to Rotate.

Charles H. Mayo, Rochester, Minn., describes as a relatively rare congenital malformation a failure of the colon to rotate into its natural position, which failure causes it to remain for the most part in the left side of the abdomen. From this may arise a failure to find the appendix, or to find it in an abnormal position. The duodenum is movable, has a mesentery, and merges into the jejunum uncovered by the transverse colon; this condition is also a cause of obscure inflammatory conditions in the left iliac fossa. About 300 cases of transposition of the abdominal viscera have been reported. The author has

observed five cases, three of which were operated on for acute appendicitis. The histories of the five cases are given.—(*Medical Record*, March 2, 1912.)

Correspondence.

Memorial Suggested for Dr. Edwards.*

RUCKERSVILLE, VA., Dec. 5, 1911.

To the Editor:

I was unable to attend the last meeting of the Medical Society of Virginia, which I always regret, but especially so this time, as there was a matter before that body in which I should like to have had a voice. As your journal is the natural forum of Virginia doctors, I write you.

There was at this meeting a movement started to collect a fund to erect a suitable memorial to Dr. Landon B. Edwards, than whom there was no man in the State that Virginia doctors would more like to honor. But the outlines seem indefinite, and the donor would naturally wish to know what the memorial will be. A memorial for benevolent or for educational purposes seems to be of a two-fold nature, and it appears to be uncertain whether the object in giving to such a fund is to honor the deceased or to advance benevolent or educational interests. Hence, such a memorial fails to honor the deceased in a pointed and exact manner, however praiseworthy the other object may be.

That Virginia doctors loved Dr. Edwards with both a fraternal and filial love there can be no doubt; and there is hardly one who would not like to contribute to a fund to erect a statue or bust of him in some public place. It should bear the inscription, "Erected by the voluntary contributions of his professional brethren."

Failing in this, I would like to see a room or section in the State Library or some fire-proof building, with an endowment of at least \$200 a year to be expended in new books, and where any Virginia doctor might contribute a volume which might be old or rare.

Hoping that this matter may be put in definite shape, I am,

Fraternally yours,

JESSE EWELL, M. D.

*The Managing Editor, for obvious personal reasons explained to Dr. Ewell, has hesitated until now to publish the above communication relative to the former Editor of this journal. While sincerely appreciative of the author's letter, had it referred to someone less closely related, it would have appeared promptly. However, as the matter has been brought up from various sources, we feel that the personal reasons mentioned should not longer cause us to refrain from its publication.

Book Notices.

Practical Medicine Series.—Under General Editorial Charge of GUSTAVUS P. HEAD, M. D., Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School, and CHARLES L. MIX, A. M., M. D., Professor of Physical Diagnosis, Northwestern University Medical School. Volume VII. **Pediatrics.** Edited by ISAAC A. ABT, A. M., M. D., and **Orthopedic Surgery,** by JOHN RIDLON, A. M., M. D. Volume VIII. **Materia Medica and Therapeutics, Preventive Medicine, and Climatology.** Edited by GEO. F. BUTLER, Ph. G., A. M., M. D., HENRY B. FAVILL, A. B., M. D., and NORMAN BRIDGE, A. M., M. D. Volume IX. **Skin and Venereal Diseases and Miscellaneous Topics.** Edited by W. L. BAUM, M. D., and HAROLD N. MOYER, M. D. Volume X. **Nervous and Mental Diseases.** Edited by HUGH T. PATRICK, M. D., and PETER BASSOE, M. D. Series, 1911. Chicago. Year Book Publishers. 12 mo. Cloth, Vols. VII, IX and X, \$1.25 and Vol. VIII, \$1.50. Series of 10 Volumes a year, \$10.00.

The value of this series of books, published annually, on all branches of medicine and surgery, is so well known, that we feel it is but necessary to say that each of the above is up to its usual standard. It is surprising what a variety of subjects is interestingly discussed in such limited space—about 240 pages each, except Volume VIII, which has 365 pages. Naturally, specialists would be interested more particularly in books relating to their specialties; otherwise, we believe any physician would feel well repaid in securing the whole series.

The Medical Epitome Series—Anatomy, A Manual for Students and Practitioners. By JOHN FORSYTH LITTLE, M. D., Assistant Demonstrator of Anatomy, Jefferson Medical College, Philadelphia. Second Edition, Revised and Enlarged. 12 mo. 491 pages. Illustrated with seventy-five engravings. Lea and Febiger, Philadelphia and New York. 1911. Cloth. Price, \$1.00.

Little's Anatomy is somewhat more than the usual compend—commonly little more than a syllabus—in that its descriptions, while concise, are made sufficiently comprehensive to render the text easily understood. In order to give all possible space to matters having a more practical bearing, embryology, histology, and applied anatomy are not discussed in this volume. The popularity of this little book is attested by numerous calls for its successive printings. The latest and revised edition will be found useful because of its convenient size and amount of material included between its covers.

Exercise and Health. By WOODS HUTCHINSON, M. D. 12 mo. 156 pages. New York: Outing Publishing Company. 1911. Cloth. Price, 70 cents per volume; postage, 6 cents extra.

This is one of a series of Outing Hand-books, the plan of which is for each volume to deal with a separate subject on the practical side of outdoor work and play. *Exercise and Health*, by an author of experience, is not only interesting, but gives common-sense advice as to how to get enough of the right kind of exercise. "The greatest error in exercise is not to take enough, and the greatest danger in athletics is in giving them up."

Editorial.

Anent Some Medical Reform Measures.

In the practice of medicine in the older days, boluses, infusions, decoctions, and other disagreeable things were the rule; to-day the sick demand pleasant elixirs, small pills and tablets. The mortality of those days did not greatly exceed that of the present.

This demand was at first met by a few manufacturers, who put before the pharmaceutical profession a few palatable and attractive proprietary preparations; their composition as well as the methods of manufacture were kept secret. Year after year has seen an increased number of proprietaries placed upon the market. Trade-marked and patented articles quickly followed, until to-day the pharmacist has become, not a compounder, but a handler and dispenser of the output of manufacturing houses; nor can we blame him, nor can criticism be made, since the medical profession is the sole and entire cause of this decadence.

When we were in the drug business many years since, to compound a prescription was a pleasure. One hundred pills of phosphorus represented a clerk's work, a tincture represented an exhibition of skill, while to spread a plaster or a blister meant more than cutting so many inches from a ready-made roll. Soda-water and lunches, postage stamps and periodicals were not in evidence, notwithstanding the profit from soda-water was great; the times have changed, and, while it is a source of regret to make the statement, nevertheless, it is true, very few cities would support a drug-store conducted upon the old lines.

The medical profession has been taught for years that the encouragement of, or the use of trade-marked and patented preparations, is derogatory to the dignity of a learned profession; this is written in the rede, still hundreds upon hundreds of physicians are daily prescribing such preparations, to the exclusion of extemporaneous and as equally efficacious combinations. Many of our so-called leaders and teachers extol anything bearing a foreign patented protection.

Some years ago, the American Medical Association, which includes in its membership not more than fifteen per cent. of the profession of the United States, through its Council of Pharmacy and Chemistry, invited all manufacturers of proprietary preparations to submit their preparations to the Council for examination and criticism, these criticisms to be made in accordance with rules laid down by themselves. Some manufacturers submitted preparations which were proven to be bare-faced frauds; others sent in many which showed much to their credit, while some others declined to submit the methods of preparation, giving, however, only the composition. This last did not satisfy the demands of the Council, and there followed efforts to drive them from the field. How far these efforts have succeeded is well known, as will be seen by glancing through the pages of the formulary. The sanction or the approval by the Council does not mean that such preparations are recommended; it simply means that the requirements have been met.

Now, to expect the results of years of study and experimentation by competent chemists and pharmacists to be given publicity without compensation, commensurate with the benefits accruing from such secret methods of manufacture, is passing belief and an injustice to the individual. For intelligent prescribing, it may, for obvious reasons, be advisable to know the general composition or active ingredients of a preparation, but, apparently, it is neither essential nor reasonable for such purpose to demand the definite method of manufacture—a matter upon which may depend the capital and very existence of a thoroughly reliable and legitimate establishment.

Many medical journals are supported almost entirely by advertisers having preparations to exploit that have proved valuable. Numerous leaders and men who stand in the front rank of the profession have given their approval, so what more is wanted. There is no valid reason why

such preparations should not be given space in the advertising pages, for a journal's prestige and value are not measured by the advertising, but by the original contributions found in its columns; the one is entirely distinct from the other, and will ever remain so in reputable publications. In many cases, journal articles are compiled or written for advertising purposes by the contributors; it is an ethical method of advertising one's self.

Attacks upon preparations sanctioned by the rank and file of the profession must have as bases fraud and misrepresentation; if their only value is a fantastic name, they will soon be forgotten, since few will take the trouble to remember such names. In any case, however, before an article is held up to ridicule, the therapeutic value must first be considered, then its chemical features; if the therapeutic value is proven, as shown by the adoption of the article by scores of practicing physicians, the chemical feature will to them become a negligible quantity.

Therefore, let the medical profession employ such means in treatment as appear best adapted to the case in hand; and such a course will be adopted and followed without regard to the opinions of others.

Personally, the writer does not employ remedies which a competent pharmacist is unable to produce.

In this matter there is room for reform and great opportunity for charitable construction of the methods employed by many manufacturers.

L. E.

The Northern Neck (Va.) Medical Association

Held its Spring session May 4, at Reedville, Dr. B. A. Middleton, of Emmerton, presiding. A number of interesting papers were read and discussed by the members and visitors in attendance. In the afternoon Dr. Cockrell tendered the members and guests a launch ride, and in the evening a banquet was served at the Reedville House.

Dr. William Tarun, of Baltimore, was elected an honorary member. The annual election of officers was held, the following being chosen for the ensuing year: President, Dr. L. E. Cockrell, Reedville; vice-presidents, Drs. R. E. Booker, Lottsburg, M. C. Oldham, Lancaster, and secretary-treasurer, Dr. R. O. Lyell (re-elected),

Warsaw. The next meeting will be held in November, the time and place to be selected later.

The Medical Society of Northern Virginia and the District of Columbia

Will hold its semi-annual meeting at Leesburg, Va., May 15, under the presidency of Dr. F. M. Brooks, of Swetnam, Va. In addition to the scientific meeting, the annual election of officers will be held, and luncheon will be served by the ladies of the town at the new hospital building.

Medical Society of Virginia.

In view of some inquiries received at this office, it might be well to state that the Secretary of the Medical Society of Virginia, Dr. P. A. Irving, Farmville, hopes to be able to issue *Transactions* of the last session of the Society in the early part of June. Much of the delay has been caused by the failure of authors to promptly send manuscript or return proof.

The Treasurer, Dr. Greer Baughman, Richmond, informs us that over \$2,000 is owing the Society from back dues, and asks that we call attention of those in arrears to this fact, as the treasury will need much of this money within a short time to meet the extra indebtedness incurred by the publication of the *Transactions*.

The Virginia State Board of Health

Met in Richmond, April 30, and passed resolutions of respect and sorrow on the death of Dr. Rawley W. Martin, its late president. At the election of officers, Dr. William M. Smith, Alexandria, formerly secretary of the Board, was elected president; Dr. S. W. Hobson, Newport News, vice-president, and Dr. J. B. Fisher, Midlothian, secretary.

Dr. George B. Lawson,

Roanoke, Va., has been appointed by Governor Mann to fill the vacancy on the State Board of Health created by the death of Dr. Rawley W. Martin. Dr. Lawson is a graduate of Randolph-Macon College and of the Medical Department of Johns Hopkins University, and is at present a member of the Board of Health of Roanoke.

The Hospital for Nervous Diseases.

It will be of interest to the readers of this Journal to know that this large modern hospital of about fifty rooms, solely for nervous diseases, is being opened in Atlanta. The building is lo-

cated two blocks off the car line overlooking the most attractive part of Grant Park, and is ideally situated for the care of nervous invalids.

Dr. Hansell Crenshaw is medical director, and the following well-known Atlanta physicians are on the hospital staff: Dr. C. W. Strickler, Internal Medicine; Dr. F. K. Boland, Surgery; Dr. J. E. Paullin, Pathology; Dr. G. M. Niles, Gastro-Enterology; Drs. Campbell and Ridley, Laryngology and Rhinology; Dr. Park Howell, Ophthalmology; Dr. Bernard Wolff, Dermatology; Dr. Edgar Ballenger, Andrology; Dr. C. R. Andrews, Orthopedics; Dr. W. F. Shallenberger and Dr. Annie L. Sawyer, Gynecology.

American Proctologic Society.

Preliminary programs have been issued for the fourteenth annual meeting of this Society at Atlantic City, N. J., June 3 and 4, under the presidency of Dr. John L. Jelks, of Memphis, Tenn. Dr. Lewis H. Adler, Jr., of Philadelphia, is secretary-treasurer. Hotel Chalfonte will be headquarters and place of meeting, and the profession is cordially invited to attend. The program promises many interesting papers.

The American Therapeutic Society

Will hold its thirteenth annual meeting at Montreal, Canada, May 31 and June 1. Dr. Alexander D. Blackader, of Montreal, is president, and Dr. Noble P. Barnes, of Washington, secretary. The program shows a number of papers on interesting subjects, and the social features will be up to their usual standard. A drive up the mountain has been arranged for the afternoon of the first day, to be followed by the annual dinner of the Society in the evening, and on the second day luncheon will be served in one of the halls of the New Medical Building, McGill University.

The Norfolk, Va., Department of Health

Is to be congratulated on the clean bill of health, as far as contagious diseases are concerned, that it presents in its March, 1912, report, recently issued. The Board is waging a vigorous warfare against flies and mosquitoes, and has full printed information as to the best way to prevent typhoid, which will prove of service to all wishing to aid in the fight against contagious diseases.

Army Medical Corps Examinations.

The Surgeon-General of the Army announces that preliminary examinations for the appointment of first lieutenants in the Army Medical Corps will be held July 15 and September 3, 1912, at points hereinafter to be designated. These points will be selected with reference to locations from which applications are received, so as to lessen traveling expenses of applicants as much as possible. Applications must be complete and in hands of the Adjutant-General at least three weeks before the date of examination. Full information as to requirements may be procured upon application to the Surgeon-General, U. S. Army, Washington, D. C.

Medical College Commencement Exercises in Virginia.

The last of this month and first of next will be gala days for the graduates and alumni of the three medical schools in Virginia. All necessary to draw the usual crowds will be to give the dates of the commencement exercises of the various schools, which are as follows:

University College of Medicine, May 21, 22 and 23; Medical College of Virginia, May 27 and 28, and University of Virginia, June 11 and 12.

In each case the baccalaureate sermon will be delivered the Sunday previous to the days for the regular exercises.

Dr. Francis E. Harrington,

Who has at times contributed to our pages, has recently been reappointed Health Officer of Cumberland, Md. His administration has placed Cumberland in the front rank of Maryland cities with regard to health conditions.

The First Annual Report of the Department of Health of Cumberland, recently issued, giving in detail the reports of the executive, vital statistics, communicable diseases, sanitation and laboratory divisions, is especially interesting in showing the good work accomplished in this city of about 22,000 population.

Messrs. D. Appleton & Co.

Suffered a severe loss by fire, when their offices on West Thirty-second street, New York, were swept by flames on April 30.

WANTED—As pupil nurses at Catawba Sanatorium for tuberculosis young women who are

cured or arrested cases. Address Miss M. E. Ewald, Head Nurse, Catawba Sanatorium, Va.

For Sale—Sanatorium with complete equipment, located in the best section of the Magic City of Roanoke. For *particulars* and *terms*, address The Keister Home Sanatorium, 22 Seventh avenue, S. W., Roanoke, Va.

Obituary Record.

Resolutions on the Death of Dr. Rawley W. Martin.

The Richmond Academy of Medicine and Surgery having heard of the death of Dr. Rawley White Martin, of Lynchburg, Va., desires to put on record its appreciation of his lofty character, his accomplishments as a physician and his services to the State and the medical profession.

Dr. Martin enlisted in the Confederate Army and soon rose to the rank of colonel. He was a physician, but fought with his men in many of the severest engagements, sustaining a number of wounds, the most severe, which permanently crippled him, whilst he was bearing the colors taken from the hands of a fallen comrade of his regiment in Pickett's charge at Gettysburg, July 3, 1863. He is said to have been among the very first men who surmounted the stonewall on Seminary Ridge on that terrible field, and to have fallen across the body of General Armistead, then dying.

He served as President of the Medical Society of Virginia, President of the Medical Examining Board of Virginia, and President of the State Board of Health. In all these trying positions he stood out as one of the most useful and one of the purest and most beloved men in the medical profession.

Be it Resolved, That this testimonial be spread upon the minutes of the Academy, that a copy be sent to the bereaved family and that they be published in the medical journals of this city.

Signed:

J. R. GILDERSLEEVE, M. D.,
JACOB MICHAUX, M. D.,
CHAS. R. ROBINS, M. D.

Dr. John W. Sale,

For many years a leading physician of Bedford City, Va., died at his home in that place, April 30th, aged eighty-six years, from an acute attack of laryngitis, though he had been in failing health for several weeks. He was a graduate of Jefferson Medical College, and had only recently retired, after practicing his profession in Bedford County for more than half a century. He was an ex-president of the Bedford County Medical Society, and was beloved as a citizen as well as a physician. He was a vestryman of the Episcopal Church, at which his funeral services were held. Several children survive him.

THE Virginia Medical Semi-Monthly.

(FORMERLY VIRGINIA MEDICAL MONTHLY.)

Vol. 17, No. 4.
Whole No. 388.

RICHMOND, VA., MAY 24, 1912.

\$2.00 a Year.
10 Cents a Copy.

Original Communications.

ALGÆ.*

By MOSBY G. PERROW, M. A., Ph. D., Lynchburg, Va.
Health Officer, Lynchburg, Va.; Fellow American Association for the Advancement of Science, etc.

Algæ are flowerless plants of simple structure with no real distinction of root, stem and leaves. Physiological division of labor is markedly limited, the entire plant usually consisting of a group of similar cells, and each cell not only shaped like its neighbors, but doing precisely the same work as they. Should any one cell become disjointed from its fellows, it could lead an independent and complete life. A number of algæ, in fact, never consist of over one cell.

The algæ are always found in water or wet places, and few if any lakes, ponds, or streams are wholly without them. It is in the ocean however, that most of them flourish, and here many persons will recognize the larger ones by the common name, seaweeds. Some of the seaweeds are said to grow to the enormous length of 1,500 feet, being the longest and probably the largest of all plants. On the other hand, a number of species of algæ are very minute in size, so minute that a powerful microscope is needed to distinguish the individual. This is true of most fresh water varieties. A familiar example of fresh water forms is "pond scum," or "frog spawn," seen on the surface of stagnant pools. This is that which "creams and mantles on a standing pond," in the words of Gratiano.

One characteristic of algæ is that they contain chlorophyl, the substance which gives ordinary leaves their green. They are thus contrasted with the fungi which contain no chlorophyl. The predominating color then, of course, is green, but any color of the rainbow, with some added, is likely to be found, red, orange, blue, brown, yellow, purple, black. This variety of

tint is due to the masking of the chlorophyl green by other coloring matters.

Propagation is either sexual or asexual, the asexual being universal and the sexual rather rare. Asexual reproduction is (1) by simple division of the mother cell into two others called daughter cells, (2) by means of spores, formed from the contents of the vegetative cells and which may or may not be motile, (3) by swarm spores, a spore with no wall, always motile and provided with hair-like projections called cilia. Reproduction by division is the chief way of multiplication, and it is interesting to recall that Metchnikoff here points out an example of perpetual life. By continuous division of one cell into two, no death ever occurs, barring an accident.

To these simple aquatic plants, scientists trace the ancestry of all vegetable forms. Strict Darwinians might here assign the beginnings of all life. Interesting though they were from this important fact, nevertheless, prior to the last twenty years, they received no detailed or thorough study. No economic importance was attached to them and the mere botanist had them to himself as attractive curiosities. It was the water expert groping for causes of odors, tastes, colors and turbidities of drinking water, qualities that the chemist and the bacteriologist both failed to explain to him, who led to increased and intensive study of all microorganisms found in fresh water. These microorganisms, other than bacteria and protozoa, are mainly algæ, and the small knowledge of their nature already acquired has written a large and the most recent chapter in the incomplete science of water analysis.

This chapter is headed the Microscopy of Drinking Water, and determines directly by use of the microscope what organisms are in the water, and counts their number in a definite volume. It throws light on what before was utter darkness, and shows why the chemist's de-

*Read before the SpheX Club, at Lynchburg, Va., during the winter 1911-12.

ductions are sometimes wrong, and why the bacteriologist cannot always reason correctly.

During the algæ episode last August in Pedlar Lake, the supply for the city of Lynchburg, the chemist with no knowledge other than that supplied by a chemical analysis would have condemned the water. The organic content and the albuminoid ammonia were high. The microscope showed that the organic matter consisted of algæ, and of course it followed that the algæ furnished the albuminoid ammonia. This perfectly satisfactory explanation could not have been given twenty years ago. Just at the time that the chemist would have condemned the Pedlar supply on high organic content and albuminoid ammonia, the bacteriologist would have given a strong testimonial for purity. The bacteria count was very low and there was no evidence of intestinal bacilli. Shortly after the copper treatment, the bacteria count jumped from one or two hundred to several thousands. This was to have been expected. They were bacteria of decomposition, disintegrating the dead algæ. Perfectly natural, and yet not knowing this, the bacteriologist would have condemned the water on the large count. At no time did tests ever show intestinal germs. It may be said here that algæ in water is no indication of either presence or the absence of dangerous pollution. Algæ are found in mountain lakes beyond the possibility of sewage contamination, and are also found in ponds reeking with ominous filth. It is a fact, however, observed by many analysts, that algæ do tend to reduce the number of bacteria. As stated above, when the algæ pest in Lynchburg was at its height, its bacteria count was low.

The microscopist deals but little with dangerous impurities in water. Sewage pollution is still primarily the work of the chemist and the bacteriologist. What are known as its æsthetic qualities, however, taste, smell and color, now seek the microscope for explanation. Despite popular belief to the contrary, seldom is the odor of the public water supply indicative of danger. Of course gross pollution with sewage would give an offensive odor, but such pollution could not escape the attention of the most negligent of officials, and large masses of decomposing animal matter would impart a distinct smell, but chances of sufficiently large masses to give pronounced odor are exceedingly remote. The odors of public water supplies, and with

odors I include tastes, whether faint, distinct, or very strong, are almost always caused by algæ. This statement could not have been made twenty years ago, but now it is made with no fear of contradiction.

The odors are either odors of growth or odors of decomposition. Odors of growth are caused by certain oils which are formed within the cell and which on liberation impart their flavor to the water. The oils may be compared to the oils of larger plants, or even animals, which give the species their distinctive smell, such for example as the onion and the herring. Many of the oils are nonvolatile, hence it is that on boiling, the odor does not always disappear. The odors of decomposition are caused by the breaking down of highly organized compounds of sulphur and phosphorus in the presence of nitrogen. Frequently the odor in a water changes; this is often the change from the odor of growth to the odor of decomposition.

To illustrate how marked odors of water sometimes become, I will here excerpt from reports of Boards of Health to the United States Bureau of Plant Industry, at Washington: Illinois—The water tastes and smells like rotten wood.

Indiana—Taste was said by the people to be woody or fishy, like rotten wood or decayed fish. At one time the report got out that the body of a missing man had been found in the reservoir.

Kentucky—Fishy odor and taste, rather musty. The odor was so strong that we had to discontinue sprinkling the streets and lawns.

Massachusetts—The odor was so bad that it would be almost impossible to take it as far as the mouth to taste it. Horses refused it at the street watering troughs and dogs fled from it.

New Jersey—Odor could be plainly detected one-third of a mile away.

New York—So very offensive as to alarm all water takers. Popular complaint was dead fish in the water mains. Odor pondy and fishy; bad water; publicly condemned. Board of Health interfered, yet analysis showed that water was not unhealthful. A special commission is at this moment charged with the duty of advising whether or not property worth two million dollars is to be abandoned on account of annual trouble from algæ.

Ohio—Water had a fishy taste, causing gen-

eral kick; consumers laid it to the fish in the reservoir. The cities A and B both have vile water; A all the year round, B for six or eight weeks in the hottest part of the summer. All vegetables, cereals, coffee and such edibles and drinks made with water are scarcely endurable to the visitor.

Pennsylvania—Water tasted and smelled like dead fish were in it.

These extracts are sufficient to show what effect on odor and taste are produced by algæ growths. In addition, there are discoloration and other æsthetic effects. The diatoms or "brown algæ" also cause brown stains to deposit on white surfaces, which renders the water bad for laundry purposes. It is easy to see then the great importance of abating the nuisance which has caused the abandonment of reservoirs that cost large sums to construct.

Various remedies have been employed. Since most algæ require light for their growth, it is an accepted law among engineers to cover all reservoirs that contain ground or filtered water, these waters being especially subject to algæ pollution. In many instances, however, the cost of covering is prohibitive. Another remedy is to pump air into the water, but this instead of removing the organisms has at times been followed by a more luxuriant growth. A third method of avoiding the nuisance has been to reduce the organic content in general to a minimum. This is always a commendable procedure, but thousands, even millions of dollars spent in stripping the bottom of reservoirs of all earth containing organic matter have failed to protect permanently against the pest.

In 1904, Dr. George T. Moore and Karl F. Kellerman, of the United States Bureau of Plant Physiology, published what is known as the copper treatment. This consists of dissolving in the water minute quantities of copper sulphate. Copper possesses great toxicity for plant growth, but is comparatively harmless to the higher animals. A few fish are sometimes killed, but these are always fish that live on the bottom such as carp, mudcats and suckers. The high swimming fish, like bass, white chubs and minnows are unharmed. For man copper does not seem to be a violent poison. It was once a favorite prescription for children as a tonic and astringent. Anyway, it soon disappears on solution in water, and after twentyfour hours no chemist has ever detected its presence. Most of it

probably combines with organic matter and precipitates as copper albuminate. Dissolving in the proportion of one part to 3,000,000 under ordinary conditions, it is estimated that in no possible manner could any one hundred men get as much copper in a day as would form a dose for an infant. At present then, copper is the standard treatment for algæ, and is used for this purpose throughout the world. It has restored to service reservoirs costing hundreds of thousand of dollars and has been a veritable boon to hard pressed water committees.

A BURN INVOLVING OVER ONE-THIRD OF THE ENTIRE BODY—RECOVERY AND CAUSE.*

By E. W. REISINGER, M. D., Washington, D. C.

In presenting this case, I will refrain from going into its history, etiology, symptomatology, prognosis, etc., because I have no desire to take you back to the "discovery of fire" or tire you with matter only too well known. I shall simply lay before you a "clinical case," explain my observations and opinions and invite discussion.

On January 16, 1911, I was called to see Miss O. L., aged eighteen years, the oldest child in a family. On entering the patient's room, I hurriedly examined her and found her entire abdomen and upper portion of each thigh, all the anterior and lateral aspects of the thoracic cavity, extending far back on the posterior part of same and involving seriously each mammary gland, also the anterior surfaces of both arms and forearms a mass of burnt, bleeding and incinerated tissue. It seemed the young lady was passing a gas heater when her night robe blew into the flame, ignited, and in an instant she was a blazing mass. Her maid hearing her cries, rushed to her assistance and tore off the burning robe; this and the lightness of the garment alone saved her from more frightful injury.

I carefully removed all shreds of the gown, disinfected all the injured tissue and removed blisters and incinerated flesh. The burn went through all stages and presented a raw bleeding surface at spots involving the muscles. Wherever a fold of the nightrobe had rested, the injury was much more severe; this was especially

*Read before the Medical and Surgical Society of the District of Columbia, March 7, 1912

so in the mammillary region, where the lower part of each gland and both nipples were lost.

Having seen quite a number of severe burn cases, and being most firmly convinced that the kidneys, after the first shock, bore the strain of the case, I decided to use no preparation of opium, as I believe it diminishes elimination. Knowing the struggle I was facing and the ordeal the patient had to go through, I carefully explained my views to the family and patient. I offered consultation which they declined and left all care and decisions to me. A trustworthy nurse was engaged, to whom were explained my position and opinions; I believe I should have failed without her assistance.

The injured area was given the usual treatment excepting that boric acid was used in large quantities throughout the case. The burnt portion was thoroughly disinfected; all blisters—there were at least thirty large accumulations of serum—were opened under the strictest aseptic precautions and their contents not allowed to get on the raw surface, nor were the coverings of same disturbed or opened more than absolutely necessary. All dead skin was removed, each shred being cut off close to the normal or only partially injured mass, and lastly, all incinerated tissue was taken away with scissors and thumb-forceps. So, I had at the conclusion of my first dressing a comparatively clean area, as nearly aseptic as possible and free of all dead tissue. You see I have so far, and, in fact, throughout the entire care of this case, simply used the modern methods of treatment in such cases, the methods used by each and every one of you and by every hospital in the city, the same excepting opium;—hence my claim.

I am free to admit I am laying before you a single case, but it is a live, healthy woman, a strong, active human being instead of the usual result—a corpse. The injury was of such a nature, so severe, so grave, as commonly to result in death. The care of the case was identical with our daily routine, except no opium was used throughout the entire treatment; it is simply a recovery where death was to be expected. Surely I am proud of the patient's recovery, but above all, I am proud of calling our profession to watch over the products of the poppy, and, by avoiding its effects, to see if such results cannot be secured by us all.

Four times during all the long illness and convalescence, the urinary excretions dropped to two, two and one-half, three and one-quarter and four ounces for the twenty-four hours, showing plainly where the brunt of the injury fell, and this occurred in spite of the fact that the patient was drinking large amounts of distilled water throughout the entire treatment.

As you all well know, my poor patient suffered agony, and again and again I was on the point of giving morphine, codeine, heroin or the like. Sulfonal, trional, veronal, etc., were used with little or no effect. Finally, my sheet anchor became large doses of chloral and the bromides, especially the latter, and thus she was partially relieved. I make no claim of discovery in these observations, as I have ever known that opium diminished urinary elimination, as has been frequently shown when I was forced to use this drug and these opinions are authenticated by Wood and other observers.

Now two facts, self-explanatory, stand out. First, here is a case with our usual treatment, a case of grave intensity, except that, instead of being made comfortable with opium, none of the narcotic was used; secondly, here is a well woman instead of a medical failure.

The handling of the patient was a fight throughout, and time and time again I was almost overcome and forced to allow my humanitarian principles to guide my actions, but I fought it out. Now I admit I am prejudiced against opium and never use or order it when I can avoid it. I consider the poppy a very untrustworthy aid and ever throwing a glamor around a patient almost impossible to resist, and again, it checks elimination and masks symptoms. I may be too radical, nevertheless, I submit the case as it is. Outside of withholding opium, the case went the usual course and recovered in the usual time, without skin-grafting.

I know I am suggesting a new line of treatment and asking a great deal, but is not any suggestion worthy of consideration when a case in which over one-third of the body surface is involved recovers, and does so without grafting? I doubt not you will say I am possibly over-strenuous in my ideas and conclusions, but can anyone hesitate when we have a recovery where all experience and writings tell us death almost always results? Hoping I have been able to se-

cure your consideration, I lay before you this recovery—a recovery *sans* opium.

1424 K Street, N. W.

MYIASIS LINEARIS.

By LUCIEN LOFTON, A. B., Ph. D., M. D.,
Emporia, Va.

The peculiar morbid condition known as myiasis linearis, creeping eruption, larva migrans, or designated by German dermatologists as "hautmaulwurf," is due to a parasite, which migrates in the epidermis. This parasite is probably of a gastrophylus or larva of one of the æstridoe (gadflies). The animal in question digs long, straight, zigzag or curves, in the skin, which may intersect, cross and recross, but which never bifurcate. The inroads or mole burrows, cause intense itching, which, upon being rubbed by the hand, spread into a deep purple of the "tracks," the adjacent skin assuming a peach flush. The burrows may be extended by the parasite as much as 1 to 15 centimetres in twenty-four hours, and show themselves as delicate red lines which gradually fade away. The creeping eruption is common in Asia and some portions of Europe. A few cases have been reported in the United States, but I am unable to learn of any dermatologist noting this extremely rare condition in the South. The cases reported by Northern and Eastern physicians were invariably among foreigners.

The diagnosis of myiasis linearis is easily established by its physical action within the true skin of a white person.

In reporting the only case I have ever seen, I trust I will be pardoned by making the following history, as I was the victim of the disease in April, 1911:

Under the left axillary space, an intense itching and burning was noted on April 16th, at 8 P. M. Upon viewing the picture from before a mirror, I noticed an irregular line over the skin as if I had been raked by a pin, but upon close inspection, I readily saw the integument had not been broken, and that no abrasion of the slightest character existed. A simple ablution of spirit of camphor was applied, which seemed to arrest the itching. Twelve hours later, the parasite had apparently described many evolutions not ordinarily assumed by any body parasite I had ever encountered. By referring to Jacobi's Dermochromes, plate No. 184, you will observe a splendid picture of my condition.

Foreign authorities advise digging out the animal or excising the portion of skin in which it is located. I cured my own case with the following, after three applications, of course, rubbing the skin until the medicament was entirely absorbed:

R

Red Iodide Mercurygr. xl.
Yellow Oxid. Mercury.....gr. xxx.
Carbolic Acidgtt. xx
Thymol 3 j.
Lanolin—q. s. 3 ij.

I have waited twelve months that I might see if there was a return of the condition, but such has not been the case.

The most interesting feature of the whole case is, where did I become infected? I had not been outside of Virginia for six months before falling a victim to larva migrans.

The disease has not proved fatal in any instance so far recorded. It is quite troublesome, and keeps one busy scratching while undergoing its ravages.

CLINICAL SIGNIFICANCE OF TACHYCARDIA OR SWIFT HEART.*

By ALEXANDER G. BROWN, JR., A. B., M. D., Rich-
mond, Va.

Professor of Practice of Medicine, University College
of Medicine; Physician to City Hospital and
to Virginia Hospital, etc.

As one contemplates the clinical manifestations of various medical entities, the habit of thought to be upon the lookout for some leading symptoms is more and more practiced. As these prominent symptoms persist in the clinical pictures, classification, interpretation, and understanding of them become essential to the clinician. With this thought in mind, it is our purpose to call attention to a prominent, frequent, and essential symptom which may or may not be a significant sign of heart disease, but which, whether expressive of essential cardiac derangement or of other more or less remote internal derangements of the presenting patient, is marked, unavoidable and self-assertive in the clinical fact, both subjective and objective.

It is desirable often times to thoroughly acquaint one's self with the true meaning of such presenting symptoms. Of pain, for instance, one must know the true from the false, the significant from the insignificant; also, of ascites,

*Read by title before the Tri-State Medical Society of the Carolinas and Virginia, at Columbia, S. C., February 21-22, 1912.

one must recall the groupings of pathology, bringing about ascitic accumulations at various sites, and under various conditions; further, also of vomiting, of headache, of dyspnea, of weakness, of convulsions, of coma, etc. One must form some fixed and guiding ideas of the pathologic factors causing the manifestations under varying forms. One must think beyond the presenting symptoms, observing its associated condition, its degree, its order, its relation, its persistence, etc., to get definite and useful interpretations.

Rapid heart action, hurry heart, swift heart or tachycardia is a prominent symptom of not a few clinical conditions. Some of these I wish to mention in brief outline.

NEUROTIC HEART OR CARDIAC NEURASTHENIA.

These are terms descriptive of a large group of cases that come to the physician for the distress of rapid heart beating. In this class of cases the physician has to discriminate between the real and unreal, between the genuine and imaginative.

In the period of puberty in the female, marked disturbances are observed. The heart expresses with quickest and most emphatic sympathy the obscure but evident changes through which the organism is passing at this period. Concomitantly with the striking mental and psychic phenomena developed during this period in females are displayed the heart hurry and other cardiac symptoms. In the hypochondria, in the study of the mysterious, in the self-contemplation, in the hidden emotions, in the secretive acts, in the magnification of the personal relations, in delicate and sensitive modesty and the hilarious, dashing spirit of abandon, the heart appears in palpitation and rapidity as a marked characteristic, and not infrequently so affects the hypersensitive mentality of the cases as to make them genuine cardiac-neurasthenics. These cases are generally young girls of the more refined classes. They are usually defective in menstruation; they are generally improperly regulated in diet, habits and exercise. Through the developing period, the heart comes forward prominently, and unless sedative and preventive measures are instituted, they resolve themselves into states of melancholia and fright over the condition of the heart.

During pregnancy, that period of development and toxemia, the heart is disturbed

in its orderly and rhythmic action. The cases of cardiac distress and tachycardia where the patient fears death are common. So distressing often times does this symptom appear to be that the patients present the condition of neurasthenia. In some of the cases, hysteria is but a resultant factor, previously brought in the clinical picture as tachycardia. As the blush upon the cheek and throbbing of the heart in the young girl is an expression of some profound emotional sensation with her mind, so is the bounding, palpitation, swift heart in the young pregnant woman the early expression of an oncoming storm of toxic origin, culminating in the vomiting, the headache, neuritis, precordial pains, intermittent heart action, dyspnea and sensations of alarm and fear.

Furthermore, tachycardia in the climacteria is a frequently observed association. When this symptom presents itself prominently in the female about this period of life, the clinician is often times too prone to attribute it to the simple "change of life." But we must appreciate and apply the clinical significance of these early signs as premonitory of the picture of severe cardiac strain, or broken compensation or heart failure. The swift heart of the menopause should mean much to the clinician before the signs of irregularity and vasomotor disturbances enter upon the clinical picture. The physician should understand the functional from the organic heart hurry.

Tachycardia is displayed also in a group of cases, often seen nowadays, from whom the reproductive organs have been extirpated. In removal of the uterus or ovaries is found the explanation of not a few neurocardiopathies; and as well may we look for the clinical significance of the persistent swift heart in the disease of the female reproductive organs. In various diseases and uterine disturbances, we not infrequently find the explanation of tachycardia.

The relationship between cardio-vascular disease and myomata has been recognized since 1885. That this coincident disturbance occurs is undoubted. The cause of the cardiac activity, the first expression of involvement of the heart, is believed to be due to elaboration by the fibroid uterine growth of some internal secretion. But whether or not it is an internal secretion, it is observed frequently that tachycardia, palpi-

tion and the irregular heart are early clinically associated with hyperplasia of uterine tissue, as well as other morbid affections of utero-ovarian growth. Thus, the clinician is not secure in his investigations of a pronounced tachycardia until he has investigated the organ of the female pelvis, remembering that the size of the tumor or the universality of the involvement of the organ is not important in this connection.

There is another group of cases showing tachycardia prominently, if not to a distressing and alarming degree. These are the emotional and sexual cases. On the one hand, we find the sensitive, high-strung, nervous disposition, often occasioned by some remote physical cause within the subject, or without, as environment, training, or mode of life. In such cases swift heart is to be interpreted as an expression of some abnormal state of heredity or circumstance that should be removed. In the female and male we also observe tachycardia in what we call "sexual cases." Diseases of generative organs in either sex tend to excite the heart to hyperactivity,—this is the common experience of physicians. In the young of either sex, in tachycardia, when persistent and intractable and not explainable upon the usual condition, one must not overlook the possibility of abnormal sexual conditions as the exciting and sustaining cause thereof.

In habits and vocations we find an explanation of tachycardia also. In the continued use of tobacco or coffee to excess, one may get a group of cases showing tachycardia as a presenting symptom; also in habits of work and kind of vocation and mode of life. I have observed tachycardia in tobacco salesmen, in factory operatives and owners, also in varnishers and "inside painters," etc.

CONSTITUTIONAL DISTURBANCES.

**Goitre*.—Undoubtedly of the classical phenomena pathognomonic of exophthalmus and tachycardia (swift heart), or pyknicardia (frequent heart), the earliest, most constant, at the same time the most important symptom, is frequent heart action. The constant elevation of pulse rate over ninety, without other apparent etiologic reasons therefor, might justly arouse clinical suspicion of thyreotoxic stimulation. The experience of clinicians generally is that there is a heart rate of 110 to 150 per minute. The pa-

tient complains of frequent palpitation. Nervous stimulation by shock, excitement, grief, etc., adds materially to the cardiac activity and invites cardiac palpitation and pain. The sign is invariably present. In types of this affection, denominated *forme fruste* or effaced or altered types, atypical cases in which, for instance, struma is wanting or exophthalmus is not perceptible, one may rely upon the presence in the clinical picture of heart frequency. If the cardiac sign is partially incomplete, the administration of a few doses of thyroid extract makes the "thyroid heart" exhibit its classical symptoms, namely, pyknicardia and palpitation. The palpitation, as shown by v. Cyon, is due to direct stimulation of the afferent nerves of the heart (depresso), and the tachycardia results from stimulation of the accelerator nerves. Strubling (quoted by Hirschfelder) has found that pressure upon the vagus slows the rapid heart.

Resulting from prolonged stimulation of iodothyreoglobulin, the heart's action is increased in force, cardiac output and frequency. This in time puts to too early utility the reserve forces of the myocardium, and inevitably, if unabated, leads to overstrain and dilatation. Under such a state of thyreotoxic overstrain, the typical picture of angina pectoris may be observed. This portends the sudden fatal termination that sometimes characterizes this malady. Or the terminal manifestations may assume those seen in failure of the left and then the right heart, to be followed by the pulmonic and systemic phenomena of lost compensation.

Under such a symptom-complex, we rightly observe the marked heart enlargement upon the chest exterior, with its enlarged area of dullness, its forcible, diffused and displaced apex beat, with its systolic blowing murmur (an otherwise organically good heart); its extra systoles, its palpitation, its arrhythmia, its abnormal first and second sound, its throbbing pulsations and dilatation of the carotids, possibly its venous pulse. The right ventricle is particularly prone to be affected. The blood pressure is usually high, due to increased systolic output.

Anemias. The heart's action is increased in anemic cases. While the rate of the pulse when the subject is at rest may not in some grades or types of anemia assume any striking and remarkable frequency, yet, even in mild grades of anemia, the heart rate, when the patient takes

*I quote from a previous communication.

ordinary exercise, is affected by a noticeable and sometimes alarming frequency of heart action. For this alone the patient may come to the physician for treatment.

In testing out the heart, the clinician may take the unusual frequency of heart action upon mild exertion to be significant. Heart frequency then may be the expression of an anemia due to loss of blood, to green sickness or chlorosis, to inanition, to gastro-intestinal intoxication, to gastric ulcer, or carcinoma, to malarial fever, to post-typhoidal state, to syphilis, to intestinal and blood parasites, to pernicious anemia, to Hodgkin's disease, etc. But the fact remains that not infrequently the patient presents himself, not because of the anemic state, but because of the frequent, oppressive, alarming heart action, the palpitation, the hurried and labored breathing, and the sensation of weakness and faintness.

In this group of cases of tachycardia, the clinician has some of the most perplexing problems of medical diagnosis before him as he endeavors to discover the essential and primary clinical significance. Further increased frequency of heart rate may signify some essential heart lesion. In this division there are hearts with various valvular lesions, associated, it may be, with near or remote concomitant lesions, such as aortitis, aneurysm, arterio-sclerosis, etc. To the clinician the swift or frequent heart action associated with any valvular heart lesion affords valuable tests for the estimation of the functional power of the heart, by rest, exertion, and by the use of drugs. Also, where no valvular lesion is detectable, the myocardium's struggle expresses in rapid systoles the evident distress and serious mischief present. In the degenerative myocardial cases, whether fatty or fibrous, whether toxic or hyperplastic, swift heart portends a serious clinical course and an ominous termination.

In this large series of cases, manifold are the associated and etiologic factors, and the tachycardia is but an expression of an over-worked muscle.

PAROXYSMAL TACHYCARDIA.

This clinical entity was described by Bouveret in 1889. One must not confuse the terms. In the foregoing we have been speaking of rapid heart action more or less sustained, or easily excited. We are

now speaking of an "essential or idiopathic" paroxysmal tachycardia. The onset is usually sudden. It may be upon awakening, during defecation, during or following nervous excitement, while the patient is asleep; upon assuming certain positions of the body, etc. When the seizure appears the heart races. The rate changes from normal or thereabouts to 160 or more in a few seconds, and, without warning, it may slow down suddenly to about normal.

The most commonly accepted theory given in explanation of this clinical condition is that of Mackenzie, who says that in these cases "the heart's contraction does not follow the normal sequence." In other words, the heart wave is initiated, not at the sinus, but in the ventricular bundle, and that the ventricle contracts independently of the auricle. It is held, also, owing to extreme irritability of the conducting bundle, that impulses may begin in the auricles and travel with swiftness to the ventricles, and set up rapid cardiac action—with extra systoles,—and it has been shown also that the paroxysmal tachycardia may be occasioned by stimulating the cardiac nerve, either accelerator or vagosympathetic. In either of these instances it is apparent that the ventricles have not time to completely fill when the rapidity of contraction is around 200 per minute. With this small output there results a want of balance in the venous and arterial circulation. The ventricles and veins are over-filled, while the arterial system is deficient in volume of blood. Thus results stasis in the pulmonary veins with edema of lungs and dyspnea, and passive hyperæmia in systemic veins.

In the arterial system, the blood pressure is low. This is manifested by extreme pallor, faintness, labored breathing, collapse, and symptoms of dilatation of the heart. With this mechanism it is evident that the symptoms are rapid heart action—160 to 300—(palpitation may or may not exist), sensation of extreme fullness in neck and epigastrium, dyspnea, and coughing with frothy, blood-stained expectoration; there is also extreme weakness, vertigo, marked excitement, insomnia, syncope, lividity of the extremities, cold sweat, dilatation of pupils, etc.

The following case report is of a patient of Dr. Stuart Michaux, with whom I was associated in consultation over a period of some weeks, more or less daily.

Case.—Mr. S. White, male, aged about 28; traveling salesman. Paroxysmal tachycardia. Temperate habits; no significant family history; no specific taint. Patient had suffered at various times within past few years from palpitation and heart disturbance, and had consulted Thayer, Musser and others.

Present illness had been marked by serious and alarming "heart spells," in which the pulse rate became too fast to count.

Physical examination of chest showed no heart murmurs; first and second sounds discernible, but soft; heart area increased in size; apex displaced downward and to left; cardiac dullness to mid-sternum. No enlargement of thyroid and no exophthalmus. Liver dullness extended below costal border the width of a finger. Abdomen distended and tympanitic. Lungs normal. Pulse rate 150 to 160 per minute; small, low tension. Anemic and pallid skin; dull expression; lips thick and red, fingers tapering and red. No swelling of extremities.

On December 12, 1911, about four months after first examination, patient was seen in consultation with Dr. Michaux. About same physical findings were gotten. In the interim patient had returned to business and had had only one attack of palpitation. Pulse 170; temperature 96.4; respiration 30; sleepless, anxious. This state of tachycardia continued, not getting below 130, and afterwards raced too rapidly to count for eight days and nights, when the rate slowed quickly to 90 and remained so for a few hours. During this long period restlessness, anxiety, irritability and dyspnoea were present. The heart action remained about 100 to 120 for a long period, with better volume and without irregularity. Without warning and without apparent cause, the rate quickly changed to 130-150 per minute.

LABORATORY EXAMINATIONS (HOPKINS) WERE AS FOLLOWS:

ANALYSIS OF URINE.

AMOUNT IN 24 HOURS.

Color—Pale amber.
Transparency—Slight cloud.
Abnormal odor—0.
Sp. gravity—1011.
Reaction—Faintly acid.
Albumin—Faint trace.
Sugar—0.
Chlorides—Normal.
Phosphates—Diminished.
Bile—0.

AMOUNT AND CHARACTER OF SEDIMENT—5.

Microscopic.

Blood—Few corpuscles.

Pus—Considerable proportion.
Mucus—No excess.
Cylindroids—0.
Crystals—0.
Amorphous matter—0.
Casts—0.
Epithelia—Insignificant.

BLOOD EXAMINATION.

Red blood corpuscles—4,380,000 per Cu. mm.
Microcytes—0.
Megalocytes—0.
Poikilocytes—0.
Polychromatophilia—0.
Granular degeneration—0.
Normoblasts—0.
Megaloblasts—0.
Haemoglobin—90.
Color index—1.02.
Malarial parasites—0.
Plates—Normal.
Leucocytes: 7,200 per cu. mm.
Polynuclear neutrophiles—57%.
(Normal—65-75%.)
Lymphocytes—38%.
(Normal—22-25%.)
Large mononuclear—3%.
(Normal—1%.)
Polynuclear eosinophiles—2%.
(Normal—2-5%.)

EXAMINATION OF FECES.

No evidence of animal parasites present. Occult blood—Small amount.

ANALYSIS OF STOMACH CONTENTS.

Test Meal. Time Administered. Time Withdrawn.
Ewald. 9 A. M. 9:50 A. M.

Physical.

Quantity received—30 c.c.
Odor—Normal.
Color—Greenish.
Proportion of fluid to precipitate—9 to 1.
Character of fluid—Watery.
Consistence of precipitate—Coarse meal.
Mucus—0.
Sp. gravity—1015.

Chemical.

Free HCl—62.
Lactic acid—0.
Volatile acids—0.
Acid salts—Trace.
Combined HCl—18.
Total acidity—80.
Blood pigment—Trace.
Bile—0.

Microscopic.

Budding yeast—Few cells.
Sarcinae—0.
Oppler-Boaz bacilli—0.
Pus—0.
Mucus—0.
Blood corpuscles—0.
Epithelia—0.
Food remnants—Starch only.

Remarks.—Marked hyperchlorhydria and probably hyper-secretion. Blood probably from passive congestion of gastric mucosa.

Late in January patient showed heart strain, and died suddenly with symptoms of dilatation.

1135 West Franklin Street.

SANITATION IN THE NAVY.*

By LOMAX GWATHMEY, M. D., Norfolk, Va.
Ex-President Medical Society of Virginia, etc.

Our Surgeon-General of the United States Navy, Fellows of the High Calling of Medicine, and Gentlemen—

Through the kind indulgence of the members of the Staff of the Naval Hospital, it has devolved upon me to respond to the able and instructive address of our honored guest and Surgeon-General, Dr. Stokes.

This demand carries with it a serious sense of responsibility. Last night saw the subject well canvassed and discussed and left for me but to sound the recession—"Lest we forget;" however, I shall detain you a few moments with a brief recapitulation.

Some injustice has been done Norfolk in past reports, and certain good results have come through just censure. The health of this whole community will be better for this agitation; and I, for one, hope that the Naval Health Officers will continue to help us in trying to help their cause.

Nevertheless, let us all be frank and fair; but in this brief recital of conditions hereabouts, which relate to your interests and ours (they are indistinguishable), I shall endeavor to be so.

In our immediate vicinity, the two problems of paramount importance to the naval authorities and to those responsible through health channels for the fighting integrity of its members are venereal diseases and typhoid fever.

The lesser evils of hookworm, malaria and the infectious diseases can be dismissed very shortly. It is only fair to state that the reports of hookworm in this section are without investigation and are unwarranted. In our routine examinations in cases showing anemia, we invariably fail signally to find hookworm as a cause.

While malaria does exist all around Norfolk, it occurs only in a mild type; yet in Norfolk proper, owing to proper drainage, sewers, etc., we see but little of the anopheles, nothing of the stegomyia, and have our comfort disturbed only by the pestiferous culex.

*Dr. Gwathmey's address was delivered in response to the following letter, dated March 21, 1912:

"My Dear Doctor.—On behalf of the medical officer in command and the staff officers, I have the honor to request you to reply to the address of Surgeon-General Charles F. Stokes, U. S. Navy, Tuesday afternoon, April 2, 1912, at the U. S. Naval Hospital, Norfolk, Va. Subject of address, 'Sanitation in the Navy.'"

"Very truly yours,

"H. M. TOLFREE,
"Surgeon U. S. Navy."

The general contagious diseases are made reportable and subject to a quarantine whose rules have been recently brought to date and codified at the request of the Health Commissioner by a committee of the Norfolk County Medical Society.

Our particularly efficient method of handling smallpox, made possible by the liberal foresight of the U. S. Government and its Navy Department in the loan of Craney Island, has enabled us to return in part the benefits of its occupancy as a quarantine station by caring for the cases arising in the service as well as those from Portsmouth, the counties of Princess Anne and Norfolk and those coming from the U. S. M. Hospital and P. H.

The energetic action of our Health Commissioner in limiting such sporadic outbreaks as recently occurred in Berkley ward, by removing a large number of suspects to the Island, and by block vaccination of whole sections of the ward is an earnest of our security from alarm on this score.

Typhoid fever in Norfolk is no more prevalent than in other localities of its size and situation. Statistically it compares most favorably with other cities along the Seaboard.

So far as I can find out, Norfolk has never had an epidemic of typhoid. When I began practice in Norfolk, several of the older physicians told me typhoid did not exist in Norfolk. Certainly in my memory there has been no epidemic. Our typhoid is strictly residual and transitory. Many cases come here from other places for treatment in the hospitals, or are taken sick in travel; they are all credited to Norfolk and serve to swell our numbers. The sources of residual infections are being guarded as fast as science permits our knowledge to advance. Our water supply, while rapidly being outgrown, is healthy. The lakes and sheds are patrolled and reported by bulletin daily. Water being a poor culture medium, it is stated that five days of sunlight and dilution are sufficient for its purification. The estimated time of flow from our lakes to the consumer is eight days, with the added safeguard of precipitation and filtration.

Our milk undergoes a strict inspection, is safe from typhoid infection and is as good as any raw milk supply. Ultimately, we must come to pasteurization, as have a few places; already our daily cream supply of something like 600 to 800 quarts undergoes this process.

The large oyster industry here was the subject of the State Health Board examination, and such sources as were under suspicion were condemned and abandoned and the practice of floating oysters in the harbor discontinued.

Our vegetables are safe and sound; they supply the markets of the large cities in vast quantities and are above suspicion. The other products of the market are rapidly becoming the objects of surveillance by the health authorities.

The greatest known carrier of typhoid, the ubiquitous fly, will be kept from wading in infected material just as fast as the doctor and layman can be educated to its importance. There is a rapid growth of adverse sentiment which will relegate this unæsthetic insect to that limbo, wherein we wish a certain wingless pest of poesy.

At any rate, Norfolk protects infected materials from flies by abolishing privies, installing sewers and screening cases wherever possible.

Several factors render a solution of the venereal problem most difficult. The subacute carriers of both sexes are an ever present menace. Nevertheless, great strides have already been made and are yet making towards an intelligent guarding of the interests of all concerned.

Too much praise cannot be given our Commissioner of Health for the courage and energy with which he has attacked this problem.

Sometime since we had the honor to introduce to the Norfolk County Medical Society a gentleman from Detroit who told the members how this question had been attacked there. From this beginning, we have gone forward, demanding a registration of prostitutes, a report of their arrival and departure, a preliminary inspection, and a bi-monthly subsequent inspection, the cards being supervised and checked by a special officer in uniform. In cases of discovered infection, the subject is removed to the hospital or the city home and treated by another than the inspecting physician. Bacteriological examinations are made in the Board of Health laboratory. In case of complaint, the housekeeper must notify the Board of Health. Violation of these provisions are subject to fines and prison terms, both of which have been enforced by the police justice and, in an appeal, upheld by the Corporation Court. The co-operation of the Navy, by keeping carriers off shore; by

reporting complaints and infections, and by forcing confrontation and prosecution has yielded excellent results. A warning of any infected locality is posted aboard ship that the wary may reverse and negative the adage of "he who runs may read."

It is our belief and hope that the methods of idea interchange so auspiciously inaugurated will continue and will be enlarged to include all the topics pertinent to this most vital question. Frankness and publicity should be our motto, and I feel confident efficiency will follow, counting as enemies of progress, distrust and delinquency in duty.

A word as to Norfolk's attitude towards the sailor as a man! To those of us familiar from youth with the seaman of the old wooden sailing vessels of war, the transition to the present-day enlisted man is remarkable. Then he was a deep sea sailor with a rolling gait ashore and an innocence bred of the forgetfulness of long cruises—a boisterous brawler giving vent to his long-pent passions; now he is a machinist, an electrician, a mathematician, if you please, studying with the expectation of promotion. On a visit to the North Carolina last year, I talked with a gun crew who were installing complete a new kind of ammunition hoist which they had made and equipped with its electrical outfit. It was an illuminating experience to me.

This kind of man wants and demands a different kind of treatment from the people he visits than did his predecessor. He is a self-respecting, intelligent citizen of the United States and should be so recognized; and in Norfolk he is so treated. All the churches, hotels and theatres receive him without reservation and give him a cordial welcome. The people of Norfolk show their interest by helping maintain the Naval Y. M. C. A., where he gains shelter, receives instructions, is entertained and protected from the sharks and vultures that prey on all the unwary. He has there a port, a home, something distinctly his, and there he can get advice and guidance.

Norfolk is not quite a sanctuary, but it is not a bad place at that. Its people are in the main liberal and just; they know the sailor and condone his peccadilloes; they appreciate his worth and encourage his efforts; they like him and will pretty surely give him a square deal.

244 *Freemason Street*.

LA GRIPPE AND ITS VAGARIES, SET FORTH IN SPECIAL CASES.*

By H. C. BECKETT, M. D., Scottsburg, Va.

The disease known as la grippe, influenza, or epidemic catarrh, is an acute febrile affection, accompanied usually by severe nervous catarrhal symptoms, resulting directly in a low rate of mortality, but indirectly, through its many complications and sequelæ, causing probably a greater number of deaths than any other malady known to the medical profession.

We all know how suddenly an attack develops. We further realize the fact that it presents no favoritism, attacking all classes with little respect to age, or to health of individuals. In fact, it seems to have a special fancy for the doctor himself. My own personal experience bears me out in this assertion, as it is the only malady that has ever attacked me in my whole earthly career.

Many people pass through the prodromic stage of this disease without any knowledge of the fact that their nerve centers are being infected with the bacilli of Pfeiffer, which are always ready for action. Within a few hours, or a few days they are in their fearful ravages. Then comes the initial chill, general depression, with pains in the back, head and limbs, this condition being followed by pallor, fever, soreness of the muscular system, pains more severe from the effects of this stage, all producing general debility.

La grippe is universal in its nature, spreading, as it does, throughout every quarter of the globe almost as rapidly as the electrical flash. It was first known in parts of Europe and Asia. The first epidemic that prevailed in the United States occurred in 1647, and since, we have had one outbreak after another until the present time. The last true pandemic occurred in Bokhara in May, 1889, and reached St. Petersburg the following October, Paris in November, and London in early December. It multiplied into an explosive form which reached its maximum in January, 1890, and reappeared in a milder form in April and May, 1891. Since 1892, a more serious form has prevailed continuously in many parts of the East and West. Virginia seems to be one of its most favorite spots, and the country doctor one of its most unhappy subjects.

The disease is contagious. It is not thought

to have any anatomical lesion in its characterization, yet there is in the abdominal type an enlargement of the glands of Peyer. This type was prevalent in Halifax County in the winter of 1906. We found in this form all the abdominal conditions of typhoid fever, and no doubt many cases were diagnosed as such. Another peculiarity of this type was its tendency to involve the lungs and to develop into a case of double pneumonia. Four such cases came under my observation and treatment at that time. This micro-organism in fact attacks so many parts of the body that we wonder one year which part it will attack the next. It may this year attack the lungs, next year the kidneys, then the liver, and so on from year to year, producing such conditions as neuralgia, insomnia, migraine, melancholia, meningitis, nephritis, otitis media and interna, mastoid abscess, iritis, glaucoma, and nearly every other ill of which we have any knowledge.

I will illustrate the vagaries of la grippe further by giving you a special case from which I learned "the ins and outs" of this malady in the full sense of the word: The patient, Mrs. F. C. was a widow of 68 years, of good family history, residence about two miles distant. On the first visit I made an examination and found her suffering of valvular insufficiency of the heart, with a large amount of water in and around this organ, which seriously interfered with its action. The patient could not breathe in a recumbent posture and had been propped in bed ever since she had recovered in part from la grippe. Her condition improved under treatment until the following winter, when she was seized with another attack of the same trouble.

An ovarian cyst followed this attack which, within three months, emptied its contents through the vaginal tract. This liquid was of a molasses consistency and approximately estimated one-half gallon, after which this ovary assumed its natural size and position. The third winter the usual attack of this disease caused a nephritis, which produced an aggravating ascites which I treated in the usual way with cathartics, diuretics, diaphoretics, and at the same time looking after the heart with strychnine, glonoin, strophanthus, digitalis, etc.

I found it very difficult to meet the dropsical complication, and when the effusion became so great as to produce pain and interfere with digestion, I had to resort to the trocar. At the end

*Read before the South Piedmont Medical Society, at Lynchburg, Va.

of the fifth year, after another attack of la grippe, the other ovary became a cyst, of such proportions that the fluid had to be drawn off. The patient continued to have the usual attacks of la grippe for eight years, running her to the extreme old age of 76. During this long period she was tapped 51 times for ascites, removing each time from two to three gallons of water making about 140 gallons removed from her during this time.

Her death was finally caused by senile gangrene, which developed rapidly after the initial red spot appeared on the inner part of the great toe.

Proceedings of Societies, Etc.

NORFOLK COUNTY MEDICAL SOCIETY— SURGICAL SECTION.

Reported by FRANK HANCOCK, M. D.

At the April, 1912, meeting of the Surgical Section of this Society, Dr. E. C. S. Taliaferro presented a case of

Sarcoma of the Right Kidney in a Negro Child Three Years Old, with Metastatic Manifestation in the Right Orbit.

Dr. Taliaferro said that the child was first seen in February of this year, and at that time had a large palpable tumor in the right groin with considerable ascites, apparently from pressure upon the vena cava and renal veins. The right eye was bulging, and painful upon backward pressure, which was considered sufficient evidence of metastasis to warrant the diagnosis of inoperable sarcoma.

As is well known, sarcoma affects by preference the two extremes of life, manifesting itself with most frequency in the first decennium. As a matter of fact, the majority of all tumors seen in childhood are sarcomatous, because benign neoplasms and carcinomata do not often occur at this period.

Sarcomata are frequently congenital, attacking especially the eye, kidney, testis and prostate, in the order named. Thus Duzan's analysis of one hundred and eighty cases of sarcoma in infancy showed seventy of them to be ocular, forty-five to be of the kidneys, eleven of the testicle, and eight of the prostate, while the long bones and the rest of the tissues and organs had less than five each.

After the tenth year sarcoma of the long

bones becomes more frequent. Following that, it dwindles in importance among the tumors, leaving the field to carcinoma until the sixtieth year, when it reassumes its malignant position as a last expression of senescence.

In this particular case nothing unusual had been observed by the parents until the late Fall, 1911, when a slight pendulousness of the abdomen was noticed, and a certain irritability and restlessness upon the part of the child. When finally evidences of distention were more manifest, and there was a seeming inability of the child to get around as it had been doing, Dr. Taliaferro was asked to see it. This was in March last. He at once made out a large tumor, perhaps the size of an orange in the region of the right kidney with the ascites mentioned before, and beginning proptosis of the right eye. The urine was normal, notwithstanding Keen's statement that hæmaturia is the most constant symptom of malignant tumors of the kidneys, and Israel's assumption that it must occur in at least seventy per cent. of the cases. The growth had developed painlessly, too.

Later, when this case was seen in April, there was evidence of emaciation, and secondary anemia, hæmoglobin being thirty-three per cent., but still there was no hæmaturia, an interval at least in keeping with hypernephroma which is encapsulated in the beginning, or with benign tumors.

The tumor occupies the lumbar region, but there is no bulging there, the growth being downward and forward. The tumor is solid and is growing so rapidly in this young child that the nature of the growth is unmistakable.

Dr. Taliaferro called attention to the striking deformity of the protruding eye, the lids of which could scarcely be approximated; the injured appearance of the eye itself now about to burst under these glaucomatous changes. The facial deformity achieved by sarcoma when attacking the tissues there is the master sign of that implacable foe, destroying as nothing else does, or can, the symmetry and the look of human intelligence arranged there by the Force which ordinarily keeps in check these disorderly perversities.

It is interesting to note in passing that sarcomatous growths become disseminated in a different manner from carcinomatous growths; the latter by a simple process of permeation

merely, while the former penetrate into blood channels, where a bunch of cells become detached and travel along a stream as emboli.

Primarily sarcoma of the orbit is very rare, and even though they may seem to be primary, they are probably lymphomata, or growths originating in an ethmoidal or sphenoidal sinus. The growth in this case is probably from the orbital periosteum, but whether it is from there or the inter-muscular septa, or the endothelium of the blood and lymph channels or the sheath of the optic nerve, it is always accompanied by a disfiguring protrusion of the eye-ball.

Autopsy. The child shown here on April 9th died on May 13th, six months after the accidental discovery of the presence of the enlarged kidney. At the autopsy the right kidney was found to occupy about one-third of the entire abdominal cavity, with the characteristic appearance of a sarcomatous growth. It was attached to the under surface of the liver that was adjacent to it, which was itself the subject of sarcomatous change. The liver was enormously distended and with the kidney took up about three-fourths of the abdominal space.

The diaphragm immediately above the right liver was thickened and infiltrated and the lower half of the right lung showed metastatic involvement. As a matter of fact, this lung was practically destroyed.

The right eye was lying upon the cheek, having been entirely shoved out of the orbit by the giant thickening of the orbit periosteum. Five days before death the cornea burst, and the lens was found by the mother on the child's cheek.

As remarkable as was this evidence of sarcoma explosion and involvement of the child's right half just as though it had been shot out of the kidney straight into the liver and lung and eye, it was not more striking than the accompanying emaciation. In several thousand autopsies which he had assisted in performing in the Vienna hospitals some years ago, Dr. Taliaferro recalled no case where the tissues showed the vital processes to have reached so low a degree as in this case, with its withered heart, transparent shell-like intestines, absent muscular and adipose tissue, and shrunken bones, to which the skin was clinging as if it were itself the winding sheet to which finally all of us are dower.

Dr. Burnley Lankford exhibited a girl three years old, with

Bilateral Congenital Dislocation of the Hip Joint.

The picture was a characteristic one, the child waddling like a duck across the stage, the body falling to the opposite side at each step. There was a striking lordosis of the lumbar vertebræ, the pelvis was inclined forward, the body thrown backwards, and the gluteals were prominent beneath the crests of the ilia, owing to the displaced heads.

Now it is true that a rachitic child may have a pronounced lordosis, and that it may waddle in walking, but the displaced heads are palpable here, and may be slightly shifted whereas in rickets the heads are stable in their cavities. This dislocation is above and to the outside of the cavity, as you well ascertain—*luxatia supracotyloidea et iliaca*.

As to this limp, it was formerly supposed to be due quite entirely to the displacement of the head upon the pelvis, but Trendelenburg showed conclusively that the attendant displacement of the gluteal muscles, especially the medius and minimus, which hold the pelvis in a horizontal position in walking or standing, was the real factor in this particular limp. The abductors, owing to their changed line of traction, cannot hold the pelvis horizontally, as the patient stands upon one foot; so the body sinks toward the opposite side at each step, conforming to the gait of the duck, as the anatomy of the situation tends to do.

In regard to treatment, Dr. Lankford said he had about made up his mind to take the operative route, because personally, he was fearful of those accidents that have happened to Lorenz, Hoffa and others in their manipulative reductions, or bloodless methods.

In the twenty-six dislocated hips treated by Lorenz in this country, he fractured once the neck, and again the shaft, of the femur, and there was one case of paralysis, and another of a torn perineum; and though he had a large percentage of material improvements, he succeeded in effecting only two perfect replacements.

With our present aseptic technic, the cutting operation does not seem to be as dangerous, and the speaker said, since his orthopedic faculties are not sufficiently aroused to tell him just when a deformed femur head has reached a non-ex-

istent acetabulum, he prefers to see with his eyes the structures he proposed to remedy.

Think of Buckminster Brown keeping that child in bed for a year and a half and then having his "complete recovery" suffer a relapse when the child was finally allowed to walk.

Just as parasites prefer certain tissues, and morbid processes certain periods of life, as Dr. Taliaferro stated, so the hip joint conforms itself to congenital dislocations, representing about nine-tenth of all that occur. Kronlein's ninety cases of hip dislocation occurring in the Berlin Surgical Polyclinic were accompanied during the same period by only five congenitally displaced humeri, two of the radius and one of the knee joint.

Hoffa believes that there is a geographical consideration to be made in connection with these intra-uterine dislocations, but we do not agree with him, any more than we do with Crile, who offers topography as a factor in the occurrence of goitre.

It is interesting that this deformity should be seven times more frequent in females than in males, and for the obvious reason of structural differences in the respective pelves. Yet it took Fehling a long time to establish that simple fact, and to silence such wily disputants, or their followers, as Tillmanns, Phelps, Cruveilhier, d'Outrepoint, Brodhurst and Stromeier.

The following cases were presented by Dr. H. F. Strine, of the U. S. Naval Hospital, Norfolk, Va.

Fracture of the Femur.

Case I.—F. M. S., Occupation, Seaman, U. S. Navy, aged 22. Patient fell from dinghy to deck, approximately fifteen feet, December 1, 1911. Diagnosis, Fracture of upper-third left femur.

December 31.—X-ray showed an extensive comminuted fracture below the trochanter major. There was three and one-half inches shortening of femur. Under ether the bone was exposed, over-riding fragments freed and replaced by strong extension. Owing to the extension, comminution plating was out of the question. Care was exercised to preserve all fragments with periosteum. These with the recently formed callus were interposed to fill up a two inch space and Buck's extension applied.

One-half inch difference in length of legs. No appreciable deformity or loss of function.

Case II.—I. S. M., C. M. M., U. S. Navy, age 48, January 9, 1912. Patient fell from turret, striking right hip. X-ray showed the same fracture as Case I, except there was less comminution. Leg flexed, abducted, and foot everted, enormous swelling and ecchymosis.

January 14.—Buck's extension applied—five pound weights increased gradually until the deformity was corrected. Good union resulted with no shortening, or deformity. Both fractures were practically identical. Had proper extension been applied early, Case I would have secured the same final result without undergoing a serious operation and one month longer confinement in bed.

The Field's Hospital Bed has proven admirably adapted for the management of fractures of the upper end of the femur. Reversing the patient and using the third elevation with the slide drawn out to correspond with the length of the patient's leg, a pulley is suspended to cross-bar at head of bed and extension applied. By shifting the pulley support along the cross-bar, any degree of abduction and eversion can be corrected. The pelvis sinks downward in the spring mattress and the tendency to tilting is obviated, or, if it persists it may be corrected by a broad adhesive to the sound side of the pelvis, attached by an elastic to the the inclined plane of the bed. The bed pan manipulation is easily managed and the patient can be made comfortable with his shoulders and head slightly elevated.

Case III.—J. J. B., C. M. M., U. S. Navy, age 35. About noon January 8, 1912, while at work aboard his ship, patient was suddenly seized with severe pain in his abdomen, vaguely localized about the umbilicus. There was no history of pain or gastric distress prior to this time.

At 10 A. M., January 9th, his temperature was 98.8 degrees Fahrenheit, pulse 118, respirations, 38. Physical signs of general peritonitis. Leucocytes, 8000; polymorphonuclear leucocyte, 70 per cent. Blood pressure, 138 m. m. Exploratory laparotomy revealed a perforated ulcer of the second part of duodenum, one-third inch in diameter. The peritoneal cavity contained an enormous quantity of gas and bile-stained intestinal contents. The opening was closed with a double layer of sutures, the perito-

neal cavity cleansed and drainage provided by large soft rubber tubes—one to the point of perforation, a second to the right renal pouch, and a third to the pelvis. Fowler's position and Murphy's proctoclysis were used. His condition during the afternoon and night was critical.

From January 10th to 17th, temperature remained under 100 degrees Fahrenheit, and pulse 90 to 98. Bowels freely flushed and convalescence seemed established.

January 19th, a mass appeared in the sigmoid pouch, temperature 101.8 degrees Fahrenheit, pulse 120, leucocytes, 22000. Under novocain, about 400 c. c. of exceedingly offensive pus was evacuated and drainage introduced. Marked general improvement was noted until January 23d, when temperature, pulse and leucocyte count again increased. A small abscess was located in the appendix region and drained under local anæsthesia.

Improvement again followed until January 28th, when a low grade remittent fever with increasing leucocytes set in. The abdomen appeared in good condition and no abscess could be localized.

February 9th.—Patient quite septic; liver almost two inches below free border of ribs and exquisitely tender on pressure in the gall-bladder region. Under general anæsthesia this region was explored but no pus found. The liver was pushed downward and to the left. The anterior incision was closed and the abscess approached from the right side posterior. A large sub-phrenic abscess was evacuated and drained.

Again there was rapid improvement for five days, then return of remittent fever. February 14th, complained of pain and tenderness along the course of right femoral vein. February 16th, right leg swollen and very tender to pressure over femoral vein middle third of thigh. Temperature 104 degrees Fahrenheit. Patient very ill. Under novocain, an incision was made with a view of ligating the femoral vein; however, this idea was abandoned when it was observed that the clot extended up to the level of the saphenous opening. The saphenous vein was not involved. The wound was closed.

From February 18th to 22d, temperature 103 to 105 degrees Fahrenheit. Extremely septic, leg enormously swollen. Numerous skin incisions made to relieve the œdema.

February 26th, slight general improvement

noted. Patient coughing, respiration 32. Area of flatness and absence of breath sounds right middle lobe. Aspirated but no fluid found.

March 1st.—Patient extremely emaciated. Repeated aspirations of right side of chest over dull area negative. Prognosis appeared hopeless—profoundly septic.

March 2d.—During the night patient stated that something "broke loose" in his lung. He expectorated a large quantity of foul smelling pus. His temperature dropped to normal and from this time on recovery was rapid and uneventful. The swelling of right leg gradually subsided.

April 29.—He had exceeded his normal weight and was discharged to duty well.

This case is presented as interesting, not from an operative standpoint but from numerous annoying complications and final fortunate spontaneous rupture of the lung abscess with complete recovery.

Dr. C. J. Andrews stated that he used "*The Field's Hospital Bed*," in St. Vincent's Hospital. He explained that the feature of this bed is a movable panel in head piece which could be extended under the mattress, elevating the head of the bed to any desired height, and making the angle of the bed at any point indicated, which is usually at position of hip of patient. When used with Buck's Extension, the patient is reversed, making an inclined plane for support of limb. This makes a most satisfactory apparatus for use with Buck's Extension. The advantages are obvious, it giving physiological approximation of the upper-third of the femur, where apposition is so difficult to obtain. The device is useful for the Fowler position as well as for the ordinary head rest.

Dr. Ed. T. Hargrave presented a man with the following history:

W. C., white, male, 24 years of age. Bony defect in skull resulting from a compound fracture sustained August 11, 1910. Six months after accident the patient began to have two or three epileptic fits each week.

Patient came under my care November 27, 1911, and examination showed a large oval-shaped depressed defect, situated over front and lateral aspect of skull. Pulsation could be seen several feet away, and pressure made over point would cause nausea and faintness. An impression was made of opening, and a jeweler made a silver plate, which the speaker placed over

opening and nailed to the skull, with small wire nails.

The wound was infected, and failed to heal despite varied treatment. The secretion amounted to one-eighth to one-half ounce daily, and February, 1912, Dr. S. W. Budd, pathologist to Norfolk Protestant Hospital, made an antogenous vaccine. The infection was due to staphylococcus aureus. He received six injections in all, two each week; since the fourth injection there has been no discharge from wound and patient has no further trouble. He is working daily on the street.

Section adjourned.

LYNCHBURG ACADEMY OF MEDICINE.

Reported by E. W. PEERY, M. D., Secretary.

The May, 1912, meeting of this Society was well attended. The paper of the evening was read by Dr. F. M. Perrow on

Some Observations on the Hypodermatic Use of Mercury.

Dr. Perrow confined his discussion to the purgative effect of the drug when given in this manner, and called attention of the Academy to the need and the importance of such an agency in cases where the stomach will not retain remedies, and in some cases of coma. The speaker cited the following cases in which he had used it with good results:

Case I.—Pernicious vomiting of pregnancy. This drug given by the needle kept the bowels moving briskly for several days, and produced a marked sedative effect on the stomach, so much so that the patient's condition was one of comfort afterwards.

Case II.—A case of hepatic engorgement and persistent vomiting following a drunken debauch. No medicine could be retained by the mouth, so mercury was given in this manner with splendid results. Several of these cases were treated in this way, and in each instance the symptoms of gastric irritation were promptly relieved.

Case III.—This was a case of eclampsia. The patient, unconscious, was given 1 1-2 grains of the salicylate of mercury, which not only opened the bowels thoroughly, but put the kidneys actively to work.

Case IV. This patient was in a comatose condition from chronic Bright's disease. The drug was used with decidedly good results.

Mercury used in this manner in proper dose

almost invariably gives this purgative effect, which lasts for several days. Its hypodermatic use in syphilis gives the same result. Ten per cent. solution of the salicylate of mercury in oil is used. Dr. Perrow said that in his hands it had not caused local pain and soreness except in luetic cases.

Analyses, Selections, Etc.

The Pulse-Rate Blood-Pressure Ratio as a Guide to Prognosis and Treatment in Acute Lobar Pneumonia.

In 1908, G. A. Gibson, in a valuable paper upon the clinical study of blood-pressure, called attention, among other facts, to the importance of its exact measurement and record in acute lobar pneumonia, says Solomon Solis-Cohen, of Philadelphia. If the pulse-frequency (in beats per minute) and the systolic blood-pressure (taken in the arm and expressed in millimetres of mercury) be charted upon the same vertical, a remarkable relation is exhibited, which is of great value (1) in prognosis and (2) as a guide to treatment.

1. *Prognosis*—When the pulse-frequency curve is higher than the blood-pressure curve, there is danger; when the two are approximately equal, the condition is one of doubt, which may incline either way; when the pressure-curve is continuously higher than the frequency curve, the patient's condition is favorable, and he may be expected to recover. The rule is not infallible, as complications, age, extent of lesions, adequacy of nursing, environment, especially the possibility of exposing the patient to open air, and other factors must also be taken into consideration; but other things being equal, in probably nine cases out of ten the prognosis may be based upon the relation exhibited between the two curves.

2. *Therapeutically*, this relationship serves to indicate the time for the administration of so-called cardiovascular stimulants and to demonstrate their effect. The actual figures of the two curves are of less importance than the distance between them.

Thus, let us suppose that on admission the patient has a pulse-frequency of 150 (beats per minute) and a systolic blood-pressure of 100 (millimetres Hg.). The prognosis is grave, and the indication for the administration of some

drug that will reduce the frequency and increase the vigor of the cardiac action and at the same time tone up the blood-vessels, is apparent. The drug the author has found most useful for this purpose is *cocaine hydrochloride* given hypodermically in doses of 0.03 Gm. ($\frac{1}{2}$ grain), and repeated every third hour until either the pulse-frequency is so far reduced or the blood pressure so far elevated that the two curves are approximate. Let us say that in six hours the pressure is elevated to 110 and the pulse-frequency declines to 120. The cocaine is continued, and in six hours more the pulse-frequency has declined to 110 and the pressure has arisen to 120. A favorable change has taken place, and the intervals between injections may be lengthened to six hours or more, according to conditions present. In the course of further treatment the pulse-frequency and blood-pressure may both decline, say the former to 100 and the latter to 110. The condition is still favorable. Later, the pulse-frequency may decline to 90 and the pressure to 100. Now we have the same figure for the pressure as it was in the beginning; but whereas it was then highly unfavorable because the frequency was 50 points higher, it is now comparatively favorable because the frequency is 10 points lower.

The figures given are, of course, arbitrary, being taken merely for purposes of illustration. While the coincident pulse-rate is, of course, the principal point to be considered, a blood-pressure continuously below 100 is, however, if not a danger sign, at least a precautionary signal even when the pulse-frequency is equally low, except during post-critical convalescence or during convalescence after a decline of temperature to normal in the absence of crisis. Decline without crisis, it is to be remarked, is the rule under treatment by bacterins or by quinine and urea hydrochloride, as reported by the author on several occasions.

Treatment by cocaine does not take the place of other treatment. It is directed against a single symptom, namely, the depression of cardiovascular tone, which symptom, however, is indicative of one of the principal dangers to be feared in acute lobar pneumonia. So-called cardiac failure is usually vasomotor paralysis; and cocaine seems to ward this off if used promptly and sufficiently. It must be given by injection. The number of injections neces-

sary in the course of an attack may be but one, or it may be as many as four to eight daily. The author has never observed any symptom of cocaine poisoning under its careful use, nor has he seen the cocaine habit induced.

When cocaine alone is insufficient, as sometimes happens, both at the beginning of an attack and later, it may be associated with epinephrin under any one of its commercial forms; about 20 to 30 minims of a 1:1000 solution constituting the ordinary dose by intramuscular injection. Epinephrin is prompt in its action but fugacious; cocaine is slower, but more persistent. Hence, their association is rational—one being used for quick effect and the other for maintained influence.

Caffeine sodio-salicylate or caffeine sodio-benzoate may be used as a succedaneum for cocaine, about 2 grs. (0.12 Gm.) being the equivalent of $\frac{1}{2}$ grain of the coca alkaloid. Strychnine and atropine are useful at times to maintain the effect when for any reason it seems inadvisable to push the cocaine. When the heart itself seems to be weak, camphor may be used, either conjointly or alternately with the cocaine. The author finds a syringeful (about 20 to 25 minims) of a 10 per cent. solution of camphor in sterilized olive oil a convenient and effective dose; but twice this quantity may be given if necessary—a 20 per cent. solution being used. The camphor is to be repeated according to indications, and thus may be given every hour or two, or only once or twice in a day; or, perhaps, but a single time in the course of the malady. No invariable routine can be given for the administration of drugs of this character—or, for that matter, of any other character. Like the artist in paints, the artist in therapeutics must mix his material "with brains."

The author has elsewhere published his favorable experience with quinine and urea hydrochloride in acute lobar pneumonia,* and during the past six months has had results even more gratifying than those previously reported. He has also seen admirable results from the use of the mixed bacterins and from the use of pure pneumococcus bacterins. Above all, he considers the continuous exposure of the patient to fresh

*Note on the Favorable Influence of Quinine and Urea Hydrochloride in Large Doses Under the Skin in the Treatment of Acute Pneumonia, Lobar and Lobular.—*Amer. Journ. Med. Sciences*, January 1912.

How to use Quinine and Urea Hydrochloride; Especially for Systemic Effect by Injection in Malaria and Pneumonia.—*New York Medical Times*, March, 1912.

air—if possible, out of doors, as upon a roof or porch—highly essential. The body is to be kept warm—if necessary, hot-water bottles and the like being used when the coverings are insufficient—but the air taken into the respiratory passages should be cold, and when possible, unconfined.

What he desires to emphasize in this article is the importance of the Gibson phenomenon; and, at the same time, to acknowledge the great assistance which it has been to him in determining when to give, when to intermit, and when to resume the administration of vasomotor and cardiac tonics and stimulants. Also he wishes to point out the great value of cocaine in this connection.—(*Critic and Guide*, May, 1912).

The Coleman-Schaffer Diet

In considering our recent knowledge of dietetics, the advantages that have accrued in the rational treatment of disease are not to be overestimated. The days of starving a fever are waning. Rational feeding, dependent upon the caloric needs of the patient, is coming into prominence. The liberal diet containing abundant protein, apparently has a value based upon experience which should give it a claim to the attention of the profession.

The Coleman-Schaffer diet has been demonstrated to be of exceedingly great value for maintaining the general nutrition and the nitrogen equilibrium of the patient suffering from typhoid fever. The basis of this special form of diet, high in protein with very greatly increased carbohydrate ratio and a moderate increase in the fats, exists in the choice of foods selected for their ready digestibility and assimilability. Food is administered at short intervals during the day and, though the quantities are not large, their caloric value is exceedingly high compared to the old methods of feeding typhoid patients that permitted emaciation and lessened the resistance of the patient. Fever, emaciation and toxicity apparently are all combated through sparing the body the losses arising from disturbance of the nitrogen equilibrium.

The principal foods utilized are cocoa, eggs, cream, bread and butter, and sugar. Cream and sugar, in the form of lactose, form the special foods of high caloric value that make the possibility of establishing this rich typhoid diet safe, inasmuch as they are foods readily assimilated, leaving but small residues, and in general

occasioning but slight intestinal disturbance. The general results that have been manifest through the exhibition of rations carrying between 3500 to 6000 calories per day, are the lessening of emaciation, the general maintenance of mental stability, the shortening of the period of convalescence, the comparative freedom from unpleasant complications, especially during convalescence, without any increase in the percentage rate of relapses, and with a lessened mortality rate.

The practical value of this form of diet has been established and there seems but little reason for continuing the old regime of withholding adequate nourishment from the typhoid sufferer who must needs maintain bodily vigor to fight against the fever and the toxins.

Metabolism experiments may originate in the laboratory, but their utility depends upon their application at the bedside.—(*Med. Review of Reviews*, May, 1912).

Mouse Tumors and Selenium

That chemotherapy, as elaborated by Paul Ehrlich, would continue to develop into other fields than in diseases caused by spirochetes has been doubted only by the worst pessimists. The scientific principles underlying the discovery of salvarsan should show the way to find other similar remedies. Following this trail, Dr. Wassermann and his co-workers appear to have made a remarkable observation—that “mouse tumors” were favorably influenced by a combination of selenium and eosin. This remedy has a selective action for the cancerous mass and causes its liquefaction after three injections. Of course, the discovery has not yet reached the stage where it is available as a remedy for cancer; but it is now being studied with a view of finding a preparation free from toxic effect, yet possessing the virtues of selenium. Many of the mice treated died, but some lived and appeared to be cured. With such able men working to find a suitable chemical combination—free from deleterious effects—we may, at least wish them success. Nothing yet has been done that can be utilized in the treatment of cancer. Unfortunately, the lay press has given much space to sensational and unwarranted reports. Soon, quacks and vampires will be preying upon the gullible public with fake remedies purporting to be Wassermann’s discovery.—(*Editorial, Journal-Record of Medicine*, March, 1912.)

Pathology of Chill Affecting Localized Areas of the Skin.

William Hanna Thomson, New York, finds that obstruction of the arteries to any part of the body has the effect of causing changes in the part, even when the obstruction lasts but a short time, which changes are analogous to the local inflammatory changes which we call "catching cold." The integrity of the body tissues depends upon the constant circulation through the arteries or arterioles. Any interference with this circulation will cause damage to the tissues. There is an intimate association between the vasomotor nerves of any cutaneous area and those of the internal parts under the area of skin. In inflammation that is not acute we can get a powerful effect on the deeper organs by counter-irritation of the surface. Through the vasomotor system special associations occur between widely separated parts of the body. All vasomotor nerves are very susceptible to cold. This is seen in the effect on the pelvic organs of wetting the feet. Local damage to the internal organs by cold allows of an easy infection with the germs which are habitually around us. If a main bronchus becomes plugged a rapid destruction of the area affected takes place. If this plugging is by mucus in a child or in a weak, aged person, there results a similar process of pneumonia or atelectasis. The patients make distressing efforts to get air. When mucus is secreted by the respiratory passages they afford a culture medium for all various microorganisms. Cold restores the tone of weakened vasomotor centers and is useful when properly applied. Nasal catarrh of the chronic type may be treated by sudden and very brief douching of the back of the neck with cold water, with care not to wet the hair. In any chronic inflammation the seat of the trouble should be carefully protected from the air. A chest protector of cotton batting is useful in chronic respiratory troubles.—(*Medical Record*, February 17, 1912.)

Correspondence.

New Medical Law in Virginia—Practitioners Required to Register.

Stuart, Va., May 13, 1912.

To the Editor—Under the recent medical laws all physicians practicing legally in Vir-

ginia are required to re-register, see Chapter 237, of Virginia Legislative Enactments, entitled: "An Act to regulate the practice of Medicine and Surgery in the State of Virginia," etc., approved March 13, 1912, Section 6 of which reads as follows:

"6. Registration of certificates; verification certificates; duplicate certificates; reciprocity.—Within one year after the passage of this act all licensed practitioners of medicine in this State shall, as above provided, register their certificates to practice medicine in the office of the clerk of the circuit or corporation court of the county or corporation in which they reside. Legal practitioners of medicine practicing under the provisions of previous laws who have not already received a license from a State medical examining board of this State shall present to the board documents sufficient to establish the existence and validity of a diploma granted to each by some *bona fide* college of medicine, or to establish their exemption existing under any law, and shall receive from said board a verification license, which shall be recorded in the clerk's office of the circuit or corporation court of the county or city in which the licensee resides, as provided above for original licensees, and duly endorsed by the said clerk in like manner. Such verification license shall be issued for a fee of fifty cents to all practitioners so qualifying who have not already received a license from a board of medical examiners of this State. It is especially provided that those whose claims to State license rest upon having practiced in the State previous to the year eighteen hundred and eighty-five, shall present to the board satisfactory evidence of having legally practiced medicine in this State before eighteen hundred and eighty-five, or if an osteopath, before the year nineteen hundred and three. The board may, at its discretion, arrange for reciprocity with the authorities of other States and Territories having requirements equal to those established by this act. Certificates may be granted applicants to practice under such reciprocity on payment of a fee of twenty-five dollars to the secretary of the board. Legal practitioners who have lost their State board certificates must obtain duplicate certificates by furnishing to the secretary of the board satisfactory proofs of the issuance to the individual of the former certificates, and upon the payment of a fee of one dollar, and the new certificates when issued must be registered as hereinbefore provided for original licensees."

The verification certificates for this purpose are now in press, and the Board will be ready to begin this work after the June meeting.

Applicants who desire to appear before the Board for examination, June 18-21, 1912, should write the Secretary for blank forms which are required to be properly filled and returned to this office ten days before said meeting.

Circular of information and copies of the law, giving full particulars, will be sent when requested.

Applicants will save time and trouble by

having the blanks properly filled and complying with all requirements of the law.

For further particulars write to

R. S. MARTIN, M. D.,

Sec'y. and Treas.

Editorial.

Ivy Poisoning.

The following news item was sent out last June from Dover, Delaware: "Gov. Pennewell is a victim of poison ivy. The Executive is at his home, Greenwood, and has been all this week suffering severely." "Suffering severely," if proper treatment is instituted, is wording that should never get in print, and this is why ivy poisoning claims attention in this journal.

Ivy poisoning is a hot weather disease. It is almost always of rural origin. It affects the country folk and the urbans outing in the country. Ivy poisoning is fearfully annoying at all times; not so frequently it is distracting; occasionally it gives cause for alarm. It may be followed by boils, abscesses and open sores. One attack predisposes to another. Repeated attacks but increase the susceptibility. Some persons seem to be specially disposed to it—breaking out at the same time every year. Others take it from the least exposure to the vine. In such extremely sensitive persons, even the dew will cause an outbreak.

The old acetate of lead and opium wash is very good in some cases, but it fails to cure in many instances or to even so much as give momentary relief from the intolerable itching. Tincture of iodine, diluted with alcohol, is by no means a bad remedy, but it also has drawbacks. And there are many other moderately successful remedies. The patient with ivy poisoning does not want any failures. The constant itching and consequent loss of rest makes him impatient for something that will stop his insufferable uneasiness and will dissolve and remove the poisonous serum from the vesicular eruption. Ammonium chloride, half to one ounce to four ounces of water, has, for a number of years, given uniformly perfect results. It is true that the remedy, especially when the skin is broken by scratching, gives keen biting pain, but this soon passes away and the affected parts feel soothed and better, and the vesicles soon

dry up and heal. Scratching does not aggravate the disease or spread it to the surrounding skin when ammonium chloride is properly used—it only opens the way for more pain when the solution is first applied. Ammonium chloride completely neutralizes any poison with which it comes in contact. The strength of the solution and the frequency of its application is a matter of judgment—depends upon the age of the patient and the character of the eruption. The way is to apply it every time the affected parts begin to itch. The results are commonly immediate and perfect. Like all other diseases, the earlier treatment is begun the better.

Persons who break out every season, whether exposed or not, should be put on some good "blood" medicine like echinacea, thuja, stiltingia, etc., with iodide of potash and syrup of iodide of iron, about one month before the time for the appearance of the eruption, and kept on it for at least sixty days. Do this for a couple or more seasons, if necessary. Proper internal treatment will help to immunize any patient. The ivy-poisoned person should sleep on a hard mattress and in the open air. This not only aids in allaying the itching—it adds much to the progress of the case towards health. S. H.

The American Medical Association

Will hold its sixty-third annual session at Atlantic City, N. J., June 4-7. The meeting will be called to order by the retiring president Dr. John B. Murphy, of Chicago, who will introduce the president-elect, Dr. Abraham Jacobi, of New York. The secretary is Dr. Alexander R. Craig, of Chicago.

The House of Delegates will convene on the morning of the 3rd, a day ahead of the general meeting and registration books will also be open at that time. Delegates from Virginia are Drs. Clifton M. Miller, Richmond, John Staige Davis, University, and William E. Anderson, Farmville.

A new feature of the meeting this year is the adoption of Clinic Days on the day before and the day after the meeting. These clinics will be in charge of representative members of the profession, and some of the clinics after the meeting will be held in Philadelphia, New York and Baltimore. The fourteen scientific sections of the Association will hold their meetings in various hotels. For the convenience of those who are unable to arrange for their mail before leaving home there will be a branch postoffice in

the Exposition Building on the Boardwalk, convenient to the Registration and Information Bureaus. Mail through this postoffice should be sent in care of American Medical Association to the above building. In this building there will also be an immense commercial exhibit of books, all kinds of surgical instruments and appliances, furniture, foods and drugs.

Although there should be no trouble in securing accommodations at Atlantic City, it is advisable to make reservations ahead of time. The first May issue of the *Journal A. M. A.* gives a long list of hotels with rates according to American and European plan. Accurate information as to railroad fares is best to be obtained from local ticket agents, though an average of 1½ cents per mile has been secured, with special or excursion rates for long distances.

While attractions at this resort should be sufficient of themselves to draw a crowd, numerous entertainments have been planned not only for the members but also for the ladies accompanying them. The badge received upon registration will furnish invitation to all social functions.

As several meetings are scheduled to be in Atlantic City just before, during, or after the time set for the meeting of the American Medical Association, members of these societies will have a double interest in attending this meeting.

Medical Society of Northern Virginia and the District of Columbia.

The annual meeting of this Society in Leesburg, Va., Dr. F. M. Brooks, of Swetman, presiding, was largely attended and a number of interesting papers were read and generally discussed. The luncheon served by the ladies of the town in their new hospital building was a thoroughly enjoyable affair.

The following officers were elected for the coming year: President, Dr. Philip S. Roy, Washington, D. C.; vice-presidents, Drs. Morton G. Douglas, Warrenton, and John A. Gibson, Leesburg; recording secretary, Dr. A. G. Coumbe, (re-elected), Vienna, and corresponding secretary, Dr. J. D. Rogers, Washington, D. C.; treasurer, Dr. Wm. I. Robey, Herndon.

The next meeting will be held November 20, 1912, in Washington, D. C.

The Montgomery County Medical Society

Held its regular meeting at Christiansburg, May 1, with an attendance of thirteen regular members. Two applications for membership were

favorably acted upon, and Dr. R. T. Akers, of Alum Ridge, Va., was elected an honorary member. After a lengthy discussion of the subject, "Quantity of Antitoxin to Be Used in the Treatment of Diphtheria," opened by Dr. H. B. Pack, of Blacksburg, several business matters were taken up. One committee was appointed to look into a regulation of the present fee system with a view to revising it, and another committee was appointed to formulate By-laws and Constitution for the Society, and report at the next meeting, which will be held in Blacksburg, early in August.

This Society, which is only a year old this month, is to be congratulated on the good work accomplished in so short a time. Out of about twenty-five doctors in the County, the Society already has a membership of seventeen. Drs. H. D. Ribble, Blacksburg, and A. M. Showalter, Cambria, are president and secretary, respectively.

The Augusta County (Va.) Medical Association, Inc.

Held its Spring session May 1, in its library rooms at Staunton, Dr. W. S. Whitmore presiding. A very interesting clinic on diseases of the nervous system was held by Dr. Tom A. Williams. Dr. Roy K. Flannagan, of the State Health Department, made an able address, advocating modern methods of sanitation. Dr. John J. Lloyd, of Catawba Sanatorium, spoke at length upon the necessity of early recognition and treatment of tuberculosis, giving complete history of methods employed at Catawba.

Election of officers will be held at the next meeting on August 7, the meeting to be followed by the annual banquet. Much business and several interesting papers were tabled until that time in order to devote more time to the entertainment of invited guests.

Southern Sociological Congress.

At the gathering of social service workers from all parts of the United States, in Nashville, Tenn., May 7-10, Governor Hooper, of Tennessee, who originated the idea of holding a Southern Sociological Congress, was elected president of the permanently organized Congress, and J. E. McCullough, of Nashville, general secretary. Corresponding secretaries were elected to represent the various Southern States, Dr. Ennion G. Williams, of Richmond, being chosen for Virginia.

Many papers were read discussing subjects of paramount interest and importance. Resolutions were adopted at the closing session setting forth the reforms for which the Congress will stand in relation to the alcohol question, the solution of the race problem, abolition of child labor, adoption of juvenile courts and reformatories, uniform vital statistics laws, abolition of convict lease system, etc.

Prevalency of Hookworm Disease.

A recent publication of the Rockefeller Sanitary Commission for the Eradication of Hookworm Disease shows that this infection belts the earth in a zone about 66 degrees wide, or, from parallel 36 degrees north to parallel 30 degrees south. Practically all countries in that section are infected. Reports received from 54 foreign countries show that in at least 46 the disease is widespread and general, while in the remaining countries it is confined chiefly to mines.

Apropos of the above, it has recently been estimated that hookworm disease is prevalent in 85 of the 100 counties in Virginia, in spite of the good work done in the fight against it last summer. In order to aid the sufferers and decrease the disease in this State, the State Health Department, with the co-operation of the Rockefeller Sanitary Commission, will open dispensaries in all counties of the State requesting them, in the order in which their applications are filed.

The Association of Surgeons of the Norfolk and Western Railway.

Will hold their fifth annual meeting at Columbus and Cedar Point, Ohio, June 18th and 19th, under the presidency of Dr. George Ben. Johnston, of Richmond, Va. Dr. J. R. Garrett, of Roanoke, Va., will be in his place as secretary-treasurer. The meeting promises in every way to be a pleasant one, and a large attendance is expected.

Cedar Point, situated on Lake Erie, is one of the most popular summer resorts in this section of the country.

The Association of Surgeons of the Southern Railway

Will hold their seventeenth annual meeting at the New Willard Hotel, Washington, D. C., June 11-13, under the presidency of Dr. J. H. Mitchell, of Mt. Vernon, Ill. Dr. J. U. Ray, Woodstock, Ala., is secretary-treasurer.

Augusta County (Va.) Post-Graduate School.

The annual meeting was held May 8 in its

library rooms at Staunton. The election of officers for the ensuing year resulted as follows: Dean, Dr. Kenneth Bradford; vice-dean, Dr. W. F. Hartman; treasurer, Dr. J. F. Armentrout; recorder, Dr. A. J. Burkholder.

This school was organized two years ago, and its members are splendidly equipped for X-ray, bacteriological and pathological investigation.

It meets regularly every Saturday at 3 P. M. for a weekly didactic lecture by one of its lecturing members, the regular four years' post-graduate course of study being used. The following are the lecturers for the six weeks beginning June 1: Drs. Kenneth Bradford, A. J. Burkholder, J. B. Catlett, T. M. Parkins, M. J. Payne, and H. B. Spencer.

This school offers the doctors of the county who cannot well leave their homes and practice an opportunity for advanced study, and is a plan which could be adopted with advantage by other county and local societies.

The National Conference of Charities and Corrections

Will be held at Cleveland, O., June 12-17. A number of prominent physicians as well as others interested in the work will be in attendance.

The American Journal of Surgery

Will, in June, issue a number composed of original contributions from men of recognized prominence in the medical profession residing in New York, and will be known as the "Greater New York Number."

Wanted—As pupil nurses at Catawba Sanatorium for tuberculosis young women who are cured or arrested cases. Address, Miss M. E. Ewald, Head Nurse, Catawba Sanatorium, Virginia.

Obituary Record.

Dr. Samuel Alexander Hinton,

One of Virginia's most prominent physicians, died at the home of his son, near New Orleans, La., May 16. About a year ago he went South on a visit to his son for the benefit of his health, and had expected to return to his home in Petersburg, Va., about the first of June. His death was apparently unexpected and has come as a shock to his many friends in this State.

Dr. Hinton was born in Petersburg sixty-

eight years ago, and received his medical education at the Cincinnati College of Medicine and Surgery, from which he graduated in 1864. Since practicing in Petersburg he has, by his skill as a physician and his genial manners, won many admirers and friends. He was for some years head of the Petersburg health department and has served as president of the local medical society. At the time of his death he was Councilor in the Medical Society of Virginia from the Fourth Congressional District, and was chairman of the Council in 1910-1911.

His wife and three children survive him. The body was brought to Petersburg for burial.

Resolutions of Respect on the Death of Dr. Rawley W. Martin.

Whereas, an all-wise Providence has removed from our midst our friend and brother, Dr. Rawley W. Martin, we, the Academy of Medicine of Lynchburg, Va., deplore the loss of a wise friend and counsellor, one whose hand was ever ready to succor suffering humanity, whose ideals were ever of the highest, and whose example and effort have done more than possibly any other man's to elevate the standards of medicine in his State above the sordid ideas of commercialism. His qualities of heart and mind endeared him to the profession of the State, as evidenced by the many honors conferred upon him. During his life Dr. Martin occupied every position of honor within the gift of the medical profession of his State. His position as President of the Medical Examining Board brought him into intimate contact with the young graduates, among whom he numbers many of his warmest friends and admirers. The profession throughout the State will feel his loss. We who were intimately associated with him will sadly miss a beloved and honored friend.

Therefore, be it resolved that we extend to the family our sincerest sympathy in their sad bereavement, and that a copy of these resolutions be sent them.

Second, that the Medical Society attend his funeral in a body.

Third, that a copy of these resolutions be spread upon the minutes of the Society.

Fourth, that a copy be sent to the State Society.

H. W. DEW,
JOHN WALKER,
JAMES MORRISON,
Committee.

An Appreciation of the Life of Dr. Rawley W. Martin.

The following paper was written by Dr. E. W. Peery, Secretary of the Lynchburg (Va.) Academy of Medicine:

Dr. Martin was a man of sterling worth. To know him was to love him. In him were combined the elements of a noble character.

His was not the ambition which actuated the lives of many of the world's great men. It was not his ambition to acquire great wealth, nor did he desire high political honors. He would have spurned the thought that he might profit by taking advantage of others, or

through special privilege; and he would have refused a competence that might have been acquired by oppressing the poor.

He chose rather to serve, and in that service exemplified true greatness, true nobility of character.

He was kind and considerate to his fellows, regardless of rank or station. This kindness and consideration for all bound them to him with indissoluble ties. Even the poorest was treated as a brother, as a sister.

He was at all times courteous and companionable, yet with courtly dignity; was conservative in thought, yet bold in action. His record is an enviable one. He lived to a ripe old age, yet his step was firm, his mind active and alert.

He was revered and loved by all who knew him, not only in his home city, but throughout the State. As a soldier he was brave and daring. In his profession he was honored by high office, and was well worthy of these honors.

For half a century he was the beloved physician of many, and answered the call of distress, no matter at what hour it came.

Very few physicians can point to a record of fifty years' service in the profession. Most practitioners retire when they begin to feel the weight of years. It was Dr. Martin's sense of duty that held him to his task. Duty to his fellow men and duty to his family.

In looking back over his exemplary career, it would seem that his whole life was actuated by this high sense of duty. These lines of Kiser's could not have been more closely followed if he had kept them constantly before his mind:

It is my duty—

"To use the gifts I have as best I may;
To help a weaker brother where I can;
To be as blameless at the close of day
As when the duties of the day began.
To do without complaint what must be done;
To grant a rival all that may be just;
To do through kindness all that can be done;
To fight with knightly valor when I must."

It was this sense of duty that led him when a young man to choose a profession which rarely brings more than a competence in return for a life of toil and service for others. It was duty that held him faithfully to this service, and also led him to work nobly for the cause of public health in his city and State.

At the time of our great civil strife, it was duty's call that impelled him to offer his young manhood in defense of State rights; in defense of Southern homes and firesides that he loved so well. This love and sense of duty caused him to battle valiantly in fighting back the Northern invader; and when our gallant forces dared to strike at the very heart of the enemy, as they did at Gettysburg, Dr. Martin's sword-thrust marked the farthest reach of Southern chivalry in that mighty effort.

At Gettysburg he saw defeat. At last, when the strife was over, he returned to a land made desolate by the ravages of war to resume the ordinary battles of life. He fought them bravely and well.

Only a few days since he met the last enemy, but without fear. In this, was his intrepid soul crushed in defeat? No! That soul, with its noble attributes, has only been transferred from finite limitations to the infinite possibilities of a glorious future.

THE Virginia Medical Semi-Monthly.

(FORMERLY VIRGINIA MEDICAL MONTHLY.)

Vol. 17, No. 5.
Whole No. 389.

RICHMOND, VA., JUNE 7, 1912.

\$2.00 a Year.
10 Cents a Copy.

Original Communications.

ON THE USE OF IODINE IN CONSERVATIVE SURGERY OF THE UTERINE APPENDAGES.

By I. S. STONE M. D., Washington, D. C.

Professor of Clinical Gynecology and Abdominal Surgery, University of Georgetown; Honorary Member Medical Society of Virginia, etc.

Many cases of salpingitis do not require radical operation, as large experience has shown. Iodine sterilization of the uterine cavity and Fallopian tubes, in addition to the usual vaginal cleansing preliminary to operation, will enable any operator to avoid unsexing many women formerly subjected to mutilating operations. For many years the writer has employed some method of sterilizing the uterine mucosa and the tubes by "injection force," but for three years has been relying solely upon iodine for this purpose.

Selection of Cases.—Preference is given the subacute cases of salpingitis or such pus tubes as have not reached great size. Obviously, the mucosa of the tubes is permanently destroyed by prolonged suppuration. While we prefer the subacute cases for the new technique, some of the most distinguished successes have occurred in acute infectious gonorrhœal disease.

Technique.—The principal new feature of our method is to use force in applying iodine to every irregularity of the cavity of the uterus, and if possible to the tubal mucosa by way of the uterine cornua. The cervix is seized with volsellum and gently dilated. A two-ounce glass syringe with conical nozzle about two inches in length is used to apply the iodine. About an ounce of diluted tincture of iodine (25 per cent.) is drawn into the syringe, and the uterine cavity is filled and distended with all the force the syringe will permit. This pressure is continued for about two minutes, and one can understand how effectually every part of the irreg-

ular cavity may be reached with the fluid. If there be an intrauterine fibroid, or any unusual irregularity, it is positively certain that it has had a thorough application of iodine.

The patient is now placed in the high pelvis position, the abdomen is opened, and the examination of the annexa proceeds. In a number of instances we have succeeded in forcing iodine through the tubes into the cul de sac, which we always desire to do. If free iodine is found in the cul de sac, we, of course, sponge away the excess and feel sure that we can save at least one tube. Both tubes are separated and examined, and a decision is reached as to the propriety of saving one or both of them. The presence of a considerable quantity of pus is not disconcerting in the least, the only question being, Can we hope to save the annexa? If even one ovary and half a tube can be retained, it is the rule to save them. The same syringe and the same or one-half strength of the tincture of iodine is now used to strongly distend the tubes with the intention of applying the iodine over the mucosa of the isthmus, if we have been unable to force the fluid into the tube from the uterus. In fact, only a very limited portion of the mucosa in the narrowest portion of the tube can escape the contact of the iodine, which may be called a "negligible quantity."

After the irrigation of the tubes, any method of surgically conservative treatment may be practiced. If the distal extremity has been badly injured, it may be excised and a phimosi operation done, in order to leave the tube open. After the irrigation the tube will be greatly congested, even if not found distended with pus, owing to the manipulation and treatment as described. We therefore attach the tube lightly to the upper border of the broad ligament to prevent its descent and adhesion near its original position in the deep pelvis.

Results.—The recovery of patients having had this treatment of their annexa is in no

way unlike the usual smooth or even course which characterizes good gynecological surgery. We have made no autopsies to ascertain if adhesions exist, because no death has followed one of these operations. There has been no more reaction, nor is there increased, but rather *diminished* pain. The examination made before discharging the patients shows no unusual tenderness or induration about the pelvic organs; and, finally, the temperature chart shows a prompt return to normal, which is a test of the efficacy of the sterilization of the tubes. We have had pregnancy occur in two patients who had pus tubes treated in this manner, and a great many others living in good health, who would formerly have had both annexa removed. The method above detailed is a routine practice at Columbia Hospital, and it has been so firmly established in favor that the complete removal of both tubes and ovaries of any patient with pyosalpinx is exceptional.

Finally, we call attention to the importance of sterilizing the uterine cornu and the end of the tube when excised. As soon as the tube is divided, we apply iodine to the raw surface made, and the same care is given the two points (uterine and tubal) as we give the stump of the appendix, and for the same reason.

Stoneleigh Court.

HEART TONICS, THEIR VALUE AND LIMITATIONS.*

By W. P. BEALL, M. D., Greensboro, N. C.

The administration of the so-called heart tonics has been, in my experience, so often disappointing in results obtained and the effects so diverse in apparently similar cases, that I began some time ago to study these remedies as a group, and thought perhaps the result might be interesting to you. I was surprised to find how meager was the literature available. The books on practice usually advise this or that remedy for various cardiac troubles without touching upon the "*modus operandi*" of the drug, and the works on materia medica, as a rule, give very little information as to the comparative value of drugs of this class. Hence, we are almost forced to prescribe heart tonics with-

out any definite idea of the specific effect of the selected drug, and this no doubt accounts, in some degree at least, for our frequent disappointments.

Before discussing remedies for the heart, however, let us get a clear mental picture of the organ itself. We know that while the heart is composed of striated fibres, like the voluntary muscles, it is not under the control of the will, but is automatic in action; hence in health it does not become fatigued by its constant action, but beats as easily and efficiently after three score years of unremitting labor as when it began to beat *in utero*. The most essential factors in producing this steady action are contractility and tonicity, and underlying these and controlling both is that property of all striped muscle which enables it to respond to all calls made upon it and known as *reserve force*. Contractility is defined as the power possessed by the heart muscle of contracting upon its contents, and thus maintaining the circulation; tonicity holds the heart muscle in systole for a brief space, giving it time to recover its contractility. The co-ordinate action of these two functions produces the normal heart beat. Reserve force, according to Dr. James Mackenzie, "is the essential principle upon which diagnosis, prognosis and treatment of heart affections should be based. It is the premature exhaustion of this reserve which constitutes heart failure, and it is the heart's power to regain this reserve force on which recovery from heart failure depends."

Various conditions of the heart affect these functions, and demand treatment. Valvular insufficiency or stenosis, inflammation of the organ itself, toxins in the blood current, as in septicemia, typhoid fever, pneumonia, etc., arterio-sclerosis by its increased resistance, all impair or destroy contractility and draw heavily upon the reserve force. But, while the end result of these impairments is the same, they reach this end by very divergent ways, and we must know and understand this before we can select a suitable remedy. Aortic stenosis or arterio-sclerosis requires treatment very different from that indicated for mitral insufficiency or a heart poisoned by some toxin. With these facts before us, we can now consider some of the drugs most generally used in diseases of the heart. These can be roughly divided into two groups, those which stimulate contractility and tonicity.

*Read before the second annual meeting of the Eighth Medical Council District with the Guilford County Medical Society, at Greensboro, N. C., March 7, 1912.

*For discussion, see page 125.

or the vaso-constrictor group, and the vasodilators which lessen the burden of the heart by dilating the arterioles.

In the first group *digitalis* stands at the head, as it is the most used and probably the most misused of the heart tonics. The glucosides of *digitalis* are very insoluble in water and are absorbed very slowly either by stomach or hypodermically. Elimination is slower still, principally by the kidneys, which probably explains its so-called cumulative action. It is best given as a tincture on a little sugar or bread, and no water allowed for half an hour. As the various tinctures vary greatly in strength, only a standardized preparation should be prescribed. *Digitalis* stimulates the cardiac muscle and the vaso-motor centers, contracting the arterioles and greatly raising arterial tension. It affects tonicity rather than contractility, and is most valuable in mitral or tricuspid incompetency, especially with dilatation. Cushny says, "In cases of dilatation, with weak and insufficient systole, its action is almost specific, so long as the cardiac muscle has not undergone degeneration." *Digitalis* is of no value in acute dilatation of febrile affections, or in the rapid heart of fevers or tuberculosis. It is also contra-indicated, and dangerous, in disease of aortic valves, and arterio-sclerosis, and in fatty degeneration. It should be given with patient in the recumbent position, if full cardiac effect is desired, as its poisonous effects are sometimes startlingly sudden, the heart being arrested in systole.

Convallaria in fluid extract is given as a substitute for *digitalis* in similar conditions. It stimulates contractility and tonicity, but has no cumulative effect. Theoretically, it is as good as *digitalis*, but has not been found very reliable in practice.

Sparteïn sulphate manifests its effects very quickly. The pulse is markedly slower in half hour, and half hour later arterial tension rises, though arterioles dilate, and the effects last five or six hours. After administration for several days, its influence persists five to seven days after discontinuance. It is not toxic even in doses of five to ten grains three times a day. It does not stimulate tonicity, hence is of great value in aortic regurgitation. Dose should be from one to three grains every six to eight hours, and it is well suited for hypodermic use.

Strophanthus is one of the best all round

heart tonics, provided a reliable preparation is secured; but the tinctures vary very greatly in strength. Houghton states that in testing four samples physiologically, he found one to be *ninety* times as strong as the weakest, and more than twice as strong as either of the others. When we know that its glucoside strophanthin is three times as poisonous as atropin, ten times as poisonous as strychnine, and twelve times as poisonous as absolute hydrocyanic acid, we can realize what could happen if a change to a new tincture became necessary in a given case. But, given a standardized preparation, it is very valuable. Small doses stimulate contractility, increasing the force of the ventricular systole and lowering the pulse rate. It does not produce vaso-motor constriction of the arterioles, is not cumulative and causes no gastric disturbance. It acts quickly, and the influence of a single dose persists for several hours. It is indicated in aortic valvular disease, acute dilatation of fevers or sepsis, and can be continued a long time. Always give just as small a dose as will affect the heart and at eight hour intervals.

Strychnine acts rapidly, stimulating both contractility and tonicity, and does not affect the arterioles. As a heart tonic it should be given in small doses, and never continued more than ten days to two weeks without an intermission. It is noteworthy that strychnine is absorbed twice as quickly from the rectum as from the stomach.

Adrenalin stimulates contractility and contracts the arterioles, raising blood pressure, and slowing the heart. It is absorbed rapidly when given sublingually, and acts quickly and efficiently when vaso-motor tone is impaired, but its effects are very transient, and it is most useful in emergencies. Do not give by the stomach, as the gastric secretions rapidly destroy it.

Nitroglycerin, *belladonna*, *camphor* and *alcohol* belong to the second group, or the vasodilators, and act by dilating the arterioles, thus relieving blood pressure, and, by lessening the work of a laboring heart, preventing heart failure.

Nitroglycerin is best given in 1 per cent. solution dropped under the tongue where it is quickly absorbed, showing its effects in five to eight minutes. It is eliminated rapidly, effects passing off in forty-five minutes. Hence, to maintain its effects it must be given every hour. Given in conjunction with any member of the *digitalis*

group it counteracts to some extent the vaso-constrictor effect.

Belladonna, or *atropin*, is most useful in sudden heart failures, and should be given in small doses, and combined with strychnine.

Camphor is a diffusible stimulant, relieving arterial tension, and in the threatened heart failure of pneumonia or typhoid fever is held by some to be the ideal remedy. It is best given hypodermically in these cases, dissolved in 10 per cent. solution of sterile olive oil. If aromatic spirits ammonia is given by stomach at the same time, better results are gained. Do not use with children, as they bear it very badly even in small doses. Do not give too rapidly, as it is eliminated slowly, and may cause strangury.

Alcohol is a very efficient and rapid vaso-dilator, flushing the face quickly, producing free sweating, and relieving the laboring heart very quickly.

I have reserved until the last the most valuable of all the remedies for a diseased heart, and that is—*rest*. "As in all forms of heart affections exhaustion of the reserve force is the essential factor in heart failure, so its restoration is the aim and object of treatment. It is idle and absurd to think that we can restore a crippled valve, a diseased muscle, or a calcareous artery to a normal condition by any treatment whatever, and we can only make the best of what is left." If we can place the heart in a position to do its work most easily while it regains its reserve force, we have adopted the only rational treatment of the condition. To do this requires study of the individual case. We may need to correct some harmful habit, like over-indulgence in alcohol or tobacco, or too hearty eating. Some change in occupation may be necessary by which mental overwork and worry may be lessened. If the failure is acute or severe, rest in bed is imperative. It is very essential that all patients with diseased hearts shall have plenty of sleep, as the heart is more nearly at rest during sleep than at any other time. A warm sponge bath, or a glass of hot milk at bedtime may be sufficient to produce sleep. If not, try the milder hypnotics, such as veronal or trional; these failing, chloral in small doses, combined with bromides, is said to be effective, and safer than opiates, though some authorities claim that small doses of morphine and atropine act best of all.

I have tried to epitomize as briefly as I could

the various indications for treatment of the heart, and the action of various drugs upon these conditions. I am indebted to numerous sources for information, notably the writings of Bartholow, Potter, Mackenzie, Satterthwaite, and Petty, as well as to various medical journals and monographs.

SALVARSAN IN CASES OF HEREDITARY SYPHILIS.*

By BURNLEY LANKFORD, M. D., Norfolk, Va.

The literature on this particular subject is rather scanty considering the vast amount that is now appearing monthly on the use of salvarsan in acquired syphilis. For instance, the last fifteen numbers of such a well known magazine as *Surgery, Gynecology and Obstetrics* contained not a single reference to this particular phase of the use of salvarsan. Therefore a brief review of this work as gleaned from some of the current literature may be of service.

To begin, salvarsan in hereditary lues may be used by three different methods—(1) The Direct, in which, of course, the drug is put directly into the child's circulation by the intravenous, subcutaneous, or intramuscular routes. (2) The Indirect, in which the drug is injected into the pregnant woman or into the nursing mother and the child receives whatever benefit that accrues either through the mother's circulation or through the mother's milk. (3) The Serum Method, in which the mother is injected and her serum then injected into the child. The first two methods seem to have accomplished the best results and each has its advocates among American clinicians.

Taking up a resume of the cases treated by the first method, Goldenberg and Kaliski of Mt. Sinai Hospital have reported two cases in the *American Journal of Medical Sciences*, April, 1911. The first, a child of three years who has shown various luetic lesions for three years, presented at time of treatment a positive Wassermann and periostitis of left finger of two months duration, also some swelling of bone below left elbow. .015 gm. of alkaline solution was injected into gluteus December 23rd. Mild reaction, and on December 28th there was decided improvement. There was much pain at site of injection. By January 21st the periostitis of finger was practically gone and the elbow condition much improved.

*Read before the Southside Virginia Medical Association, at Suffolk, Va., March, 1912.

The second case—girl, fourteen years, was admitted to hospital because of swelling and tenderness over right leg. Mercurial inunctions were tried for two weeks without apparent benefit. She was later treated by mercurial injections with same result. On January 10th, (the Wassermann being positive, as well as a marked family history of syphilis) she received .3 gm. salvarsan, alkaline solution, into gluteus; moderately severe pain. January 20th, she received the second injection in liquid paraffin without much pain; the swelling and tenderness over left malleolus disappeared, though in what length of time the authors do not say.

Sam W. Lambert (*Medical Record*) reports one case in child of two months, having a severe coryza at birth. At seven weeks it developed a dull red, irregular rash over body, bullae on thighs and palms, and fissured lips. Wassermann positive. Injected .25 gm. under skin, with marked and sudden improvement. The father and mother both showed negative Wassermann, though the father confessed to having had lues eight years before, for which he had received eighteen months treatment.

Van Borkay reports one case of severe chorea in which he gave .2 gm. In two days the movements had greatly decreased, and in two weeks almost ceased, while another control case to whom he gave large doses of Fowler's solution showed no improvement. No Wassermann was done on this case, however, nor did the author state whether there was a history of syphilis, so that no definite conclusions should be drawn.

De Buys (*Archives of Pediatrics*) quotes Wechselmann and Sequira as obtaining good results with this method, though he also quotes Herxheimer, Reinke, Doblin, Wechselmann and others as not obtaining such good results.

Bokay and Vormes report twenty-three cases, all under one year and most of them under four months, to whom salvarsan was given either intramuscularly or subcutaneously in doses of .005 to .01 gm. for each kilo. of body weight. A second injection was given in eleven cases in which the symptoms did not improve as rapidly as was expected and in which the Wassermann remained positive. All of these cases were under observation for at least four months and the results up to that time were uniformly good, though they feel that not enough time has elapsed to say that the good results will be lasting.

Doblin reports six cases, infants, whom he injected directly; two were openly hopeless, and promptly died, showing no improvement. Of the remaining four, none showed any marked area of necrosis, no redness, no ulceration at the site of injection, in marked contrast to what usually happens in the adult. There did occur a hard swelling. The luetic skin symptoms were markedly influenced, but the cases were not under observation long enough to make a definite report of the visceral conditions. In summing up his results carefully, he concludes that none of his cases were benefited in a general way to any marked extent. On the other hand, Kolb reports six cases treated by him with injections directly into the gluteal region, with the same absence of local reactionary signs and the same rapid improvement in the skin and mucous membrane lesions, with a later improvement in bony and pseudo-paralytic symptoms (in one case defective hearing improved rapidly) but he concludes that salvarsan did increase the body weight and general condition of his cases though he advises that it be given by means of the milk from the nursing mother. Doblin thinks that in salvarsan we have the most effective agent yet advanced for the treatment of hereditary syphilis. De Buys reports a case of deafness, child nine years, whose father and mother both showed positive Wassermann but to whom the administration of .3 gm. intramuscularly produced no improvement of the hearing though the child's weight increased.

Lemeland collected sixty-six cases in which salvarsan was injected directly into infants, using single large, and repeated small injections. The clinical results were excellent in the majority of cases.

It was found that the Wassermann reaction disappears much more slowly than in the adult. Out of these sixty-six cases, there were twenty-one deaths and forty-five cures. He did not state what was taken as a cure, probably a disappearance of symptoms and a negative Wassermann.

My personal experience with salvarsan in purely hereditary syphilis consists of two cases; in both the intravenous route was used. The first was a girl, nine years, whose family history was sufficient for a diagnosis. In addition she showed general glandular enlargements (hard, well-defined glands) a very wizened old woman appearance, typical Hutchinson's

teeth; patient was markedly underweight, besides being backward in school. Her two brothers and one sister all showed pretty much the same condition. The attenuation of the infection in the mother could be very prettily traced in the children, the oldest being the most affected, the youngest the least. She was given .3 gm., showed a partly well-marked reaction (sweating, fever, nausea), but no signs of improvement in her general condition. A second injection was not allowed, but after waiting several months for any possible good to show up from the salvarsan, she was put upon mercurial inunctions and she is now slowly gaining weight with some general improvement.

The second case is that of a boy, eleven years of age, from whose parents I could get no history whatever of syphilis. This boy's chief complaint was continual headache. Seen by Dr. H. L. Myers, patient showed no causal condition in his eyes, yet, because of his headaches, his low mental calibre, his general adenitis as well as Hutchinson incisors and peg-shaped canines, the diagnosis of congenital lues seemed positive. He was given Hutchinson's pill for some six weeks and showed no improvement; salvarsan was advised and given .3 gm. intravenously with moderate reaction. For thirty-six hours he had no headache; his mother said it was the first time for months that he had gone so long without complaining; she thought that she could see some betterment in his mental condition during the next few weeks, but when she brought him back to me six weeks later I could see none. A Wassermann done at this time (at Johns Hopkins) showed 100 per cent. positive, so he was given a second dose .3 gm. I was never able to convince myself that he received any immediate benefit. Six months later he still showed marked inequality of pupils; his mental condition had not improved. He had no headaches and had gained some in weight, but his general condition seemed far from good. He lived at some distance and I have not been able to follow him closely.

Treatment of the Pregnant Woman with Intent to Benefit the Fetus.—Gluck reports one case in which he injected a woman seven months pregnant with the result that the fetus died the next day. Wechselmann reports ten such cases with normal termination of pregnancy in only three, and only one of the three was born entirely without symptoms or rather signs.

J. Lemeland (quoted in *Am. Jour. of Obs.*) has reported a review of thirty-nine cases in which salvarsan was injected into the pregnant woman, and he thinks the action is just the same as in acquired lues. Only thirty-two of these cases were carefully studied and in them it was found that the women bore the injections well and that there was no ill effect upon the fetus. The action on the syphilitic manifestations was as brilliant as upon other cases, the effect on the Wassermann was the same, the elimination of arsenic just as rapid, and in no case was there marked intoxication of the fetus, there were thirty living, and two still-born infants. Not a single abortion was caused.

The method of injecting the nursing mother seems to have met with greatest praise among clinicians who have published reports, though there are some who report adversely.

Ehrlich explains the good effects as due, not from the arsenic secreted in the milk, for, though it is secreted, it is in too small quantities to have any effect, but to the excretion of antitoxins; these, entering the baby's circulation, kill a certain number of spirochetes, with the consequent liberation of antitoxins of the baby's own manufacture, thus starting up a protective cycle.

Taege, Duhot, Dubrowitch, Sholtz and de Buys have reported several cases in which .5 or .6 have been given to the mother with excellent results to the infant. From their record it would seem the best treatment.

Wolbarst (*Medical Record*) reports a case of his somewhat in detail. An infant, four days old, showed anal fissures, oral mucous patches, bullae on soles, palms, and buttocks, snuffles. Wassermann on both parents was positive. On the fourth day in the afternoon the mother was given .5 gm., with the customary reaction (not well-marked). Early next morning it refused the breast and began to vomit greenish material. On the morning of the second day it became cyanotic, developed an erythematous rash and died that afternoon. Careful autopsy showed typical lues, inflammation of lungs, liver, kidneys, but no arsenic.

One writer, Jeanselme, has cautioned against giving salvarsan to mothers when the infant shows marked signs of visceral syphilis. Wolbarst's case would seem to lend weight to the caution. The mother's milk showed arsenic in one to ten million parts of milk and such a small quantity could not have poisoned the

baby; hence, death must have been due to the syphilis. Probably the reason for the ill effects in markedly visceral syphilis is that such cases harbor many more spirochetes than the skin lesion cases, and Ehrlich thinks the ill effects are due to the sudden slaughtering of so many spirochetes with the consequent sudden liberation of so much endotoxin that the host is overwhelmed.

Lemeland (*Am. Jour. Obs.*, quoted from *L'Obs.*) reported having found eighteen cases in which the mother was injected for the purpose of influencing the child through the milk. Success was not uniform, twelve being failures. Among the twelve, there were three deaths, the remaining six being successful.

J. Peiser (*Berl. Klin. Woch.*) reports two cases, that within the first week after birth showed signs of congenital syphilis. The general condition of one of these infants was poor and the prognosis bad; the condition and prognosis of the other were good. Wassermann in both mothers and both infants was positive. The condition of both infants temporarily improved after their mothers were injected, but they soon relapsed and died. Autopsies showed lesions of lungs, liver, kidneys, bones; undoubtedly syphilitic. The internal organs of one showed no spirochetes; the suprarenals of the other showed many. No trace of arsenic was found in milk of either mother. Rosenthal reports one case of injection of nursing mother with an increase in syphilitic condition of child; a return to mercury gave satisfactory results.

E. Jeanselme (quoted in *Am. Jour. Obs.*) appears to have gone into the whole subject very carefully. His conclusions are that salvarsan injected into the nursing mother has a marked effect on skin and mucous membrane lesions in the infant, but that return of manifestations is not rare, and that the deeper visceral lesions are not beneficially affected but rather aggravated, even to causing the death of the child. Mercurial inunctions will cure severe lesions that are not reached by natural injections. Possibly the reason for this is that mercury circulates as an albuminate and penetrates much more thoroughly than does arsenic which circulates as a foreign body. Jeanselme thinks that after mercury has been used ineffectually on these deep lesions, the child should be given (directly) a small injection.

C. F. Marshall (*Brit. Jour. Child. Dis.*) looks with disfavor upon the use of salvarsan

in hereditary syphilis. He fails to find evidence that tertiary lesions and para-syphilitic manifestations can be presented by arsenobenzol. He thinks that it is not to be compared with the use of mercury, but if used at all may be tried where mercury has failed. He claims that intravenous injections are positively dangerous and not indicated in congenital syphilis, and predicts that if salvarsan should come to replace mercury in the treatment of congenital or acquired syphilis, there will be an increase in the amount and frequency of tertiary manifestations and a rise instead of a fall in infant mortality.

The conclusions that may be drawn from the combined evidence gathered from these different sources would seem to be that salvarsan should be administered to older children showing bone, skin and mucous membrane lesions, but only by the intravenous route and probably after mercury has been given a trial; that in young nursing infants with skin and mucous membrane lesions the most promising and quickest methods of controlling symptoms is by injections given the mother, followed by mercurial inunctions; that with well-marked visceral involvement we should not use salvarsan at all.

CONSTIPATION—ITS CAUSES. CONSEQUENCES AND TREATMENT*

By FRANCIS B. BISHOP, M. D., Washington, D. C.

This subject is perhaps as old as the human race, and one always of importance, especially so to the American people. It has been treated by all methods from salts to surgery, and the number of remedies to be found and the number that are being constantly added to these for its treatment is not an indication that our efforts to cure are altogether as satisfactory as we would wish.

The causes of constipation are quite numerous, and may, in an otherwise perfectly healthy person, be due solely to negligence in attending to the calls of nature. When the feces pass into the rectum, they irritate the afferent nerves in its walls; they transmit impulses to the centres in the lumbo-sacral region of the cord; here efferent impulses are set in motion, upon which depends the reflex acts required to complete the process of defecation. Being a voluntary, as well as a reflex act, one may voluntarily neglect to respond to this sensation or this de-

*Read at a meeting of the Medical and Surgical Society of the District of Columbia, February 1, 1912. For discussion, see page 118.

sire, until finally tolerance establishes itself and the calls become less frequent and are less pronounced. This neglect may be a cause *per se*, or it may be associated with other causes, such as are often enumerated as (a) sedentary habits and over-eating; (b) coarse diet, which leaves too much residue, or a diet which leaves too little; (c) diet too rich in proteids; (d) the drug-taking habit; (e) any form of obstruction; (f) chronic distention of the stomach and intestines as a result of fermentative and putrefactive changes; (g) weakness of the abdominal muscles in obesity, or from repeated pregnancies and other causes.

The consequences of constipation are not so easily enumerated, as many of the consequences are not really due to the constipation itself, but more directly follow the causes that produce the constipation and its consequences. For instance, may be mentioned auto-intoxication as a result of over-eating, especially a diet too rich in proteids.

Where, as a result of bacterial digestion of the protein food-products, indol, phenol, skatol, etc., are found in poisonous quantities and are absorbed into the system, these may disturb the normal metabolism to such an extent as to produce high-blood pressure, arterio-sclerosis, anemia, neurasthenia, hysteria, chronic affection of the liver, acute fevers, and many other conditions with which you are all familiar.

The chronic distention of the bowels by gases and retained fecal matter will cause atony of the large intestine and chronic disease of the mucosa, enteritis, perforation, etc. And as the fecal matter accumulates in the descending colon and rectum, it may produce, in the female, painful menstruation, and complicate other pelvic disorders. Diarrhea, dysentery and hemorrhoids are local consequences of the constipation.

The list of causes and consequences are not deemed in any sense complete, and are mentioned only for the purpose of elucidating the method of treatment that will be outlined below.

The treatment may be considered from the medicinal, dietetic, mechanical and electrical standpoints.

It is well to begin treatment with the bowels empty, so it is my custom to have my patients flood the colon thoroughly with warm water and common soap. This is followed for about

a week with the best intestinal antiseptic that I can get; *this*, I believe to be about one-tenth of a grain of calomel three times daily.

In order to eliminate purin bases with the resulting toxemia, as far as possible the patient is placed upon a strictly vegetable diet, and is then instructed to stop eating before quite satisfied; by this means, we are able to wait longer on the efforts of nature with less danger of systemic poisoning.

Breathing exercises and various stooping exercises are given to be used night and morning, to aid in strengthening the diaphragm and abdominal muscles. These are regulated as nearly as possible to the condition and to the strength of the patient. *Corsets are discountenanced.*

In order that there may be no misunderstanding as to the results obtained by the use of electricity as a therapeutic agent in the treatment of this chronic disorder, it is well to remember that, when properly used, it may stimulate nutrition and aid nature to *gradually* restore function to tissues long atonic, or partly paralyzed from disuse or pressure; it cannot generate tissue, nor restore that which has been permanently cut off from its central nerve supply; and in aiding nature to restore atonic tissue, it can do so only as fast as nature can furnish the material for the process of restoration. Therefore, as most of the cases of constipation are very chronic and as many of the intestines are very atonic and distended, their muscular fibers, both circular and longitudinal, are to an extent irresponsive to stimulation, and good judgment will naturally tell us that stimulus too strong, or too long continued at one seance, will defeat the object of our labor. Only by careful study of each case, a carefully selected diet, a little medicine, exercises well directed, electricity judiciously administered, and patience both on the part of the physician and the patient, can we hope for success.

While the gastro-intestinal movements are not at present considered dependent upon the central nervous system, yet this system does exercise considerable influence in the way of regulation and control. It is the action of electric currents upon the autonomic nervous system, the cerebro-spinal nervous system, as well as its action upon the unstriped circular and longitudinal muscular fiber upon which we must depend for results in these cases.

From Stewart's Physiology, 1910, we gather that "Stimulation of the peripheral end of the pneumogastric nerve may cause movements of all parts of the alimentary canal from the oesophagus to the large intestine, and may strengthen movements already going on. The lower part of the large intestine is influenced by the sacral nerves and by certain lumbar nerves in the same way as the higher parts of the alimentary canal and particularly the small intestines are influenced by the vagus and splanchnics. Stimulation of the sacral nerves within the spinal canal, or of the pelvic nerves (*nervi erigentes*) into which they pass, causes contraction of the parts of the large intestine concerned in defecation. The parts involved in the movements are probably the sigmoid flexure and rectum. Stimulation of the lumbar nerves or of the portion of the sympathetic into which their visceral fibers pass (lumbar sympathetic chain from second to sixth ganglia, or the rami from it to the inferior mesenteric ganglia) causes inhibition of the movements of the cæcum and the whole colon.

"Excitation of the sacral nerves initiates, or increases the contraction of both coats of the portions of the large intestine on which they act. Excitation of the lumbar nerves inhibits both. And in the small intestines the same law holds good; the two coats are contracted together by the action of the vagus, or inhibited together by that of the splanchnics." One can readily imagine with a knowledge of these facts that the quantitative and qualitative application of electricity is a question of prime importance. And of no less importance is the careful selection of the polar action in certain localities and the space covered by each pole. The electrical treatment is rather complicated, and only a general outline of the treatment can enter into a paper of this kind. A detailed description would take up more of your time than I have a right, or desire to ask.

When the descending colon and rectum are principally involved in consequence of neglect to attend to the call of nature, a small amount of warm water is slowly injected into the rectum, a well insulated rectal electrode is passed into the water, so that a water contact is formed in the rectum; a distributing electrode is placed over the lumbar sacral region of the cord. The continuous current is now turned on with the negative pole in the rectum.

Just enough current is used to cause gentle contraction of the rectal muscles, when the current is made and broken. This interruption is kept up at the rate of one interruption every ten seconds for five minutes. It is well to be always prepared for emergencies in the treatment, for in susceptible cases the patient is sometimes unable to get to the closet in time; but this is not often the case, they will usually give sufficient warning. More frequently it does not have such an immediate effect. This does not of course mean that our patients will yet have voluntary movements. If the abdominal muscles are weak from obesity or other causes, it is well to treat them on alternate days by the double spark gap and vacuum tube method from the static machine. The patient is placed upon his back upon a couch or operating chair, or reclining in a semi-sitting position; a metal electrode is placed over the spinal column from the sixth or seventh dorsal to the second lumbar vertabræ; to this is attached a cord leading to positive side of the static machine. At the negative side of the machine a movable ball electrode is attached by means of an X-ray tube holder, and a cord leading from this ball is attached to a wire leading to a metal target inside of a vacuum-tube electrode. The patient holds the handle of the vacuum tube, which is about one foot in length, and places the flat surface of the bowl over the muscles of the abdomen, as directed by the physician operating the machine.

The sliding rods (the spark gap between which represents the positive side) are approximated. The ball electrode making possible the extra spark gap and representing the negative side of the machine, is placed closely in contact with the prime conductor of that side, the tube being in place and the cords arranged so that there is no possibility of the patient receiving a shock by coming in contact with them. The machine is started slowly and the spark gaps are opened so that there is the slightest perceptible spark passing at each gap. Now, by approximating the ball on the negative side to the prime conductor, a slight contraction of the muscles under the vacuum tube will occur. The strength and volume of the contractions will be proportional to the length of the spark between the prime conductors. When the strength desired is obtained, the muscles are made to contract and relax by opening and

closing the spark gap at the negative side. A more gradual and wave-like contraction may be obtained by leaving the extra spark gap closed absolutely, and opening and closing the sliding rods. When the machine is in motion and the spark gaps perfectly adjusted, the patient is instructed where to place the tube, and the muscles of the whole abdomen are thrown into contraction, one after another, at the rate of fifteen or twenty contractions a minute, always giving the muscles time to recover between contractions to avoid muscle fatigue. This treatment I find also useful in treating hemorrhoidal complication of constipation, by placing a short metal electrode in the anus, and placing the patient upon his belly, lying upon a large metal electrode. I have seen many cases of hemorrhoids relieved in this way, and the relief in quite a number has lasted for years.

When the whole colon is involved and chronically distended with gas, a combination of the two methods described is used on alternate days. But, in addition, I use the interrupted direct current and coarse faradic current, with a small interrupting electrode pressed well down into the abdominal muscles all over the large intestines, beginning at the ileo-cæcal valve, passing up over the ascending, crossing over on the transverse and continuing down the descending colon with a current just strong enough to be felt by the patient to contract at the electrode in the rectum. The stomach and small intestines are treated through the pneumogastric nerves, in addition to mild currents from the double spark gap treatment already described.

The progress is slow, but the treatment in quite a number of cases has been eminently successful.

As we have already seen, the viscera is supplied with two sets of control nerves—accelerator and inhibitory. When the accelerator nerves cause contraction of the muscles of the intestines above the descending mass of fecal matter, the inhibitory nerves cause a relaxation below, so that the mass is propelled along the gut with the least resistance possible. As the autonomic reflexes are extremely delicate, we must use great judgment in stimulating them lest we overdo rather than do too little; of the two extremes, the latter is much to be preferred. As our patients improve, the treatment may be

varied accordingly, and the time between treatments lengthened.

Each case is a law unto itself and must be treated according to the temperament and susceptibility of the patient. When this is recognized and the treatment carried out faithfully, and for a sufficient length of time, the result will usually justify the time and means employed.

1913 *I Street, N. W.*

THE CYSTOSCOPE—TECHNIQUE IN EXAMINING THE URINARY VISCUS.*

By THOMAS V. WILLIAMSON, M. D., Norfolk, Va.

In bringing the subject of the cystoscope up for discussion to-night, it is not my intention to go into exhaustive details. It is natural that lengthy descriptions of instruments and technique only serve to confuse the physician instead of giving him a clear idea of this important diagnostic procedure. The cystoscope is undoubtedly a wonderful factor in the diagnosis of most morbid vesical, ureteral and nephric processes, and its use should be encouraged, so that it may become more largely a matter of routine in these conditions. It would be impossible for the busy practitioner to become conversant with the various makes and types of instruments save by the expenditure of much time and money. Nor would he receive any permanent benefit by a mere abstract description of them. Therefore, with these facts in mind, I will endeavor to present to you this evening only those points about the cystoscope and its technique which my brief experience has shown me to be simplest, most salient and material.

The need of a definite, practical means of visual examination of the urinary viscus long ago led to experiments in this line. The early efforts to find a suitable method were like all pioneer movements, crude and makeshift. Now that we can look back on the work of our predecessors in this field, we divide the age of the development of the cystoscope into three different periods:

First,—The epoch of reflected light.

Second,—The use of the heated platinum wire introduced into cavity.

Third,—The adoption of the hot and then

*Read before the April, 1912 meeting of the Surgical Section of the Norfolk County Medical Society, at Norfolk, Va.

the cold incandescent bulb for illumination.

The credit of the first examination of the bladder with reflected light must be given to Bozzini, of Frankfort. In 1807 he devised the means of using a straight metal tube introduced into the viscus through which he reflected the light of a candle by a mirror. The unsatisfactory results of this method led to its being discarded, and from that time until 1877 the uropoietic tract was an unknown field except to the knife.

About this time, copying after the stomatoscope of Bruck, of Breslau, Nitze, with the aid of a Viennes instrument maker, constructed a cystoscope, by which illumination was obtained from a platinum wire covered with glass attached to its distal extremity. This wire was brought to a white heat by an electric current. It had to be cooled by a stream of cold water constantly flowing over the lamp. This system had many disadvantages, and the cystoscope did not become a popular and serviceable instrument until Edison invented the incandescent globe. Newman first applied this form of light to the cystoscope.

Soon after Edison gave the world the benefit of his discovery the epoch of real development of the cystoscope began, and much earnest labor was spent upon its refinement. Briefly speaking, the combined work of various men resulted in the production of two distinct types—the direct and indirect instruments. Without entering into a detailed discussion of the respective merits of these two types, my preference is for the indirect instrument for the following reasons:—

As the direct instrument is built on the principle of the telescope, only that field which is opposite the objective or vesical end is visible. This being the case, it is readily seen that a great amount of elevation, depression or lateral variation of the distal extremity is necessary for the examination of any considerable surface of the viscus. The base of the bladder in the region of the trigone is highly sensitive and vascular, and the depression of the instrument in bringing it into view causes severe pain and often considerable hemorrhage. In shifting the cystoscope, the prostatic and membranous urethra with its rich and delicate nervous supply is put upon the stretch, causing the patient marked discomfort.

In the indirect type the window and light are

situated so that the object is viewed at a right angle to the long diameter of the shaft. This arrangement insures a larger field without moving the cystoscope, permits the examination of more of the bladder surface, and does not necessitate the same amount of elevation or depression to see the fundus or base. With the aid of a deflector, which deviates the catheter to any angle, catheterizing the ureters is no more difficult with the indirect than with the direct type. In my opinion, the indirect instrument is more serviceable in the larger number of cases than the direct.

Technique of Cystoscopy.—Before attempting to introduce a cystoscope, two important facts must be ascertained, namely, the integrity and calibre of the urethral canal, and the capacity of the viscus to receive and retain the dilating fluid. Prostatic hypertrophy, stricture of the urethra or spasm of the vesical sphincter may occlude the lumen of the canal and render the passage of the instrument impossible in the first instance; while, in the second, a hypersensitive or contracted bladder, or the presence of cystitis, ulcers or stone may prevent dilatation.

Assuming that all conditions are favorable for the examination, there are three cardinal phases of technique which must next be considered:—

First,—Sterilization of the instrument.

Second,—Preparation of the patient.

Third,—Irrigation of the bladder and introduction of the distending medium.

The cystoscope is so constructed that boiling destroys the cement around the lamp and lenses. Therefore, other means of sterilization must be used. The simplest and most widely accepted technique is as follows:

1. Cleanse the instrument thoroughly with green soap and warm water.

2. Rub all parts except lamp and lens with alcohol.

3. Place the cystoscope in a 1-40 solution of carbolic acid and let it remain for twenty minutes.

4. Rinse with boric acid solution or sterile water before introducing, to remove all carbolic.

In preparing the patient, have him remove shoes, trousers and drawers before getting upon the table. Place his feet in stirrups or on specially constructed stilts with the knees well separated. The buttocks should rest well down

toward the end of the table with the head and back slightly elevated, so that the patient is in a comfortable lithotomy position. If necessary, the buttocks may be elevated by changing the position of the table.

A soft rubber catheter is next introduced into the bladder and the urine drawn off. The urine should be caught in a glass receptacle and examined for pus or blood. The viscus is then irrigated with warm boric acid solution until the return fluid is perfectly clear. About six to eight ounces of the boric solution is then injected into the bladder and the catheter withdrawn after carefully instructing the patient to retain the fluid if possible. The ordinary piston syringe of the Janet type, with a capacity of two to four ounces, is most serviceable in irrigating the bladder.

The lamp of the cystoscope is then tested and brought to the proper degree of illumination. The light should not be too white to obtain the best results, but just off the red, so that the individual wires in the lamp cannot be clearly distinguished.

Having detached the electric connection, without changing the rheostat, the instrument is thoroughly lubricated with glycerine or Iceland moss preparation. As neither of these substances is oleaginous, they do not blur the lamp or lens. The cystoscope is then introduced into the meatus and passed through the urethra on the same principle that a sound is used. When the beak is felt in the perineum, the pressure of a finger there will facilitate its passage. The cystoscope differs from the sound in that its beak projects from the shaft almost at a right angle. Therefore when it becomes engaged in the triangular ligament a greater amount of depression of the ocular end is necessary before it clears and passes the internal vesical sphincter. Remember that in introducing the cystoscope extreme gentleness should be used in order to avoid pain and trauma with its subsequent hemorrhage. No force is demanded except in depressing the instrument after the triangular ligament is reached, and that force is very slight. Above all things, do not begin this depression until the ligament is reached. The motto Dr. Keys uses in all manipulations in the urinary tract should be scrupulously observed here—"Gently, gently, gently."

Most observation cystoscopes are so constructed to-day that the telescope is introduced with the sheath. Therefore, with this model, after the beak has entered the viscus the operator is prepared to make his examination. But in using the type of instrument that does not permit the observation telescope entering with the sheath, the preliminary irrigation with a catheter is dispensed with. In this case, after the sheath with its obturator in place has passed into the bladder, the obturator is withdrawn and the urine allowed to escape through the opening in the sheath. The bladder is then irrigated until clean and the telescope slipped into place with the viscus empty. Dilatation is obtained by forcing the fluid through a stop-cock at the side of the sheath.

Seated in front of the patient with the eyes on a level with the telescope, the light is now turned on. Bearing in mind the desire to cause the patient as little inconvenience and discomfort as is consistent with good work, a well-defined system or routine should be followed in covering the vesical walls. Even with such a system, the operator may, at times, become confused or uncertain as to the exact location of the region he is viewing. However, there are three unmistakable landmarks which should set him right—the air bubble in the fundus, the internal vesical sphincter above, and the trigone below the internal urethral orifice.

When the instrument is introduced, the beak is pointing upward toward the fundus. By slipping the cystoscope further into the bladder, a round convex and highly refractile body is brought into view. This is a bubble produced by the invariable entrance of a small amount of air with the fluid and instrument. Then, by inserting the cystoscope a bit further and by sweeping the beak around in a circle, the posterior and postero-lateral walls pass in review. By withdrawing the instrument and repeating the same maneuver the entire surface may be examined. Then, having satisfied himself about the condition of the body of the viscus, the operator turns his attention to the more important anatomical structures, namely, the internal sphincter and trigone. The normal color of the bladder is a glistening golden yellow or orange, with a delicate network of blood-vessels running through it. With the beak turned upward, the instrument is with-

drawn until this yellow or golden color ceases and a sharply defined, crescentic, deep red area presents itself. This is the internal sphincter, and its deep color is due to the increased vascularity. Having examined the sphincter, reinsert the instrument slightly and turn the beak downward. By gently and slowly withdrawing it the trigone is reached. The trigone is triangular, highly vascular, deeply injected, and is slightly raised above the base of the bladder. It is easily recognized by the difference in color between it and the bas-fond. The apex of the triangle is formed by the internal urethra, while its base is the interureteral ridge. Situated at each lateral angle of the trigone on a slight bulge of the interureteric ridge caused by the presence of the ureter beneath the mucosa is a ureteral orifice. These ureteral exits recognize no given law in either position, shape or appearance. They vary too widely for me to attempt a detailed description here, but, as a rule, they are situated fairly close to the lateral angles of the trigone and appear as raised, reddish crescentic slits through which the urine is seen projected in spurts or whirls.

Locating the ureters is about the nicest proposition in cystoscopic technique, and requires considerable skill and practice. A knowledge of this procedure should be acquired on a phantom bladder before attempting it on the human subject. The interureteral ridge is the guide in the search for the ureters. This ridge, as you remember, forms the base of the trigone and has quite a distinct and characteristic appearance. It is rounded, elevated, and is lighter in color than either the bas-fond or trigone. It gives the impression of a concave light pearl gray eminence, running like a band between the dark red trigone and the glistening yellow bas-fond. It really divides the base of the bladder into its two parts—the trigone and bas-fond. Having found the interureteral ridge in the mid-line, follow it outward by carrying the ocular end of the cystoscope toward the opposite side; in the meantime slightly rotating the beak outward and upward as it approaches the region of the ureteral aperture. In this movement the beak should describe an arc of about thirty degrees laterally, and the ureter is then usually in the field of vision. As I said before, the ureteral orifice varies greatly in shape and appearance. It may be a mere red-

dened slit, simulating a blood-vessel; may be crescentic or turned upon itself, resembling a horse-shoe, or it may give the impression of a golf hole or crater. The only positive method of identification is to watch it and see the ureter contract, with the subsequent gapping of the opening and expulsion of the whirl of urine.

As the region of the trigone is the seat of most pathologic vesical changes, very careful attention should be given it. The greatest delicacy in manipulation is essential in going over this area, for roughness produces intense pain, and trauma gives rise to free hemorrhage, which quickly clouds the distending medium, thus demanding either the withdrawal of the cystoscope or continuous irrigation.

When I first had this paper in mind, I intended to touch upon the technique of ureteral catheterization, but I find it takes too much time. I will briefly run over this phase of cystoscopy in replying to discussion.

311 *Taylor Building.*

Proceedings of Societies, Etc.

MEDICAL AND SURGICAL SOCIETY OF THE DISTRICT OF COLUMBIA.*

Reported by JOHN DUNLOP, M. D.

Quinine and Urea Hydrochloride as a Local Anæsthetic.

Dr. Eliot spoke of cocaine and urea quinine as a local anæsthetic. He used urea quinine in a woman 36 years old with dysmenorrhea. She was dilated and curetted. When he took out the gauze pack the vaginismus and contractions were very painful. Four per cent. cocaine embarrassed respiration. He used a ten grain suppository of quinine and urea hydrochloride. Three of four days later she complained of a good deal of pain; when he examined her he found an ulcer about the cervix which was six weeks in healing.

He laid stress upon the fact that when this anæsthetic was brought out it was said to be harmless. He used it as he had other local anæsthetics, doubling its dose for local work in the vagina.

He related the case to guard us against any careless use of this drug and to warn us as to its possible action.

*Meeting of February 1, 1912.

Dr. Hickling has had no experience with this salt as used by *Dr. Eliot*. He has used it hypodermatically, but has ignored its toxic effects; he has never seen any symptoms attributable to it, and he thinks the action non-irritating when thus used. He would want more evidence as to its ulcerating effect. All have seen the effect of 4 per cent. cocaine and in such local use should never use it to exceed its therapeutic dose.

Fracture of Lower End of Tibia.

Dr. Dunlop reported a case of this character, where it was very difficult to demonstrate the fracture by radiographs. A lateral and an antero-posterior view did not disclose it, but a three-quarter view showed it quite plainly, although the fragment was in good position.

The paper of the evening was read by *Dr. Bishop* on

Constipation—Its Causes, Consequences and Treatment†

DISCUSSION.

Dr. Copeland said he is so unfamiliar with electro-therapeutics that he feels unfitted to discuss the paper from that standpoint. In referring to a paper the previous evening by *Dr. King*, he spoke of the squatting position as being of great benefit to sufferers of constipation. *Dr. Copeland* feels that electro-therapeutics would be very hard to accomplish on infants. He thinks that constipation in breast-fed infants is much harder to contend with than in the hand-fed infant. Lack of exercise, he feels, is a big factor with the infant. He does not think that electro-therapeutics is applicable to children on account of fear.

Dr. Eliot says that constipation is a relative term. What is constipation in one patient does not cause distress in another.

Acute constipation is the result of strangulation, angulation, volvulus, etc., and it is folly in such a think of medication; immediate operation is demanded.

Chronic constipation is due often to errors in diet, false modesty, sedentary habits, Bright's disease and rectal ulcer, hemorrhage, etc. This is the class in which we can do the most good. Obstipation is due to an angulation of the bowel, foreign body, congenital deformity, stricture, etc. In such cases we have to resort to surgical means. Often the condition is due to hypertrophy of the Valves of Houston; if so, they must be divided. *T. C. Martin* used a special

knife. In such an operation a hemorrhage may become one of the difficult problems; the Pennington Chip is therefore safer. If such an operation relieves, the constipation is cured. He thinks that the electric light bath is of use. Psychotherapy is of use also. Colonic washings have their use, but high pressure must be avoided.

Dr. Hickling says that constipation is after all a symptom due to a large number of different causes. He believes that a great number are improved by electricity. In one condition electricity is of great help—that is the dilated or relaxed condition. These are best treated by the faradic or Morton wave current by bringing motion and activity. We get results by increasing the muscular tone and not by any electrolytic action. Many such cases he thinks are due to psychic effect. *Dubois* reported many such cases and he thinks their conclusions are quite true and he gives his patients falling in this group a long talk the very first thing. It is very necessary to select the cases for such treatment.

The points in suggestion:

1. Need not take medicine; in this must be very positive, the less positive, the less effect.
2. Go to stool one hour after beginning breakfast.
3. Regular diet, limited amount of meat, vegetables and fruits.
4. Glass of cold water the first thing on rising.
5. Rough massage, self given. *Dr. Hickling* then gave up cascara and tried this method in selected cases and it acted like magic. This method is open to all.

Electrical therapeutics all have formulas. And he believes this a way of impressing patients. He thinks that electricity is of very little use other than suggestive in psychogenic cases.

Dr. Hazen. Autointoxication unquestionably follows constipation. *Taylor's* article in *Osler's Modern Medicine* is very good on the subject. He finds that colored patients are not so easily suggested to. The use of prunes and figs at night, water the first thing in the morning and regular habits are a very great help.

Dr. French. The psychical element probably does cure a vast amount of constipation. Mental depression and neurasthenia are frequently the causes of constipation. Where there is abdominal relaxation, an abdominal support is

called for, and when this relief is given the mental condition clears up.

Dr. Atkinson thinks that suggestion is hard to give. He believes that laziness is a great cause. Should give thought to the work.

Dr. Hickling called the attention of the Society to the fact that *Dr. Mayfield* had read a paper on the squatting position about twenty-two years before.

In his remarks he had not meant to imply that psychotherapy would cure all cases, only those of a psychogenic nature.

Dr. Kober said that he felt that a more careful position in children will help as in adults, and he believes that children's minds can be trained in this direction. He believes this a field where a good investigation may be carried on.

Dr. Gwynn believes that we lay too much stress on constipation which is, after all, a relative term, and give too much treatment. He feels that what may be a proper frequency of stools for one may be either too much or inefficient for another individual, and he feels that much harm can be done by too much cathartic. He cited one case where patient had a movement of the bowels after each meal and that if this was not done he thought immediately that something was the matter.

Dr. McKimmie thinks that constipation and auto-intoxication are serious questions. He calls to our memory how frequently we have cured children with calomel when we did not know what was the matter with them. He firmly believes that much of the trouble with children is due to laziness or that they do not want to stop what they are doing.

Psychotherapy, he thinks, begs the question and he does not think the child is affected by psychic disturbances. He thinks *Dr. Bishop's* paper of interest, but few are able to discuss it.

Dr. Bishop in closing, said he probably owed the Society an apology for bringing this subject before them, but so much has been said and written upon this subject lately, that he thought it well at this time to present the form of treatment that had been useful in his hands.

His cases were not surgical nor does he believe that the class of cases that he has treated could be persuaded to get well without treatment. The electric light bath may do good; he has never used it as it has never seemed to him to be a rational treatment. He uses the

soapy solution in the rectum, in order to get a diffuse contact, and to prevent a too concentrated action of the current upon the mucous membrane. Can see no special advantage in the saline solution. Still there is no objection to it, as it would answer practically the same purpose.

This old gag, suggestion, has been shot at him every time he has read a paper before a body of mixed medical men for the last twenty-five years. Cases that he has reported cured from piles to constipation, there is always some one to claim that the cure was by suggestion and not by the physical and therapeutic properties of electricity. Men learned in so many other branches should take a little time to study the action of currents upon the body, as well as the action of body-currents themselves, and the action of electricity upon those currents.

His treatment is, as far as he is able, directed to the cause of constipation.

What is erroneously called the Morton wave current, and has, by a committee of scientific men selected for the purpose of investigating the static currents, been designated as an oscillatory current, is a true Hertzian wave. The honor, if it belongs to any one, belongs to Prof. Hertz. This current, when used too long or too powerfully, has in his opinion, in some cases, done harm.

We all have a right to our opinions as to the bad effects of toxins upon the system; with due respect to *Dr. Osler* and *Dr. Taylor*, *Dr. Bishop* believes that they do harm, and very often a great deal of harm. He has noticed that, as the nervous and other disagreeable symptoms disappear in his cases, the evidences of bacterial invasion of the intestines disappear by the reduction or absence of indican, skatol, and phenol from the urine and feces.

NORFOLK COUNTY MEDICAL SOCIETY— SURGICAL SECTION.

Reported by FRANK H. HANCOCK, M. D.,
Norfolk, Va.

At the May, 1912, meeting of the Surgical Section of this Society, the following case was shown:

Fracture of the Spinous and Transverse Processes of the Lumbar Vertebra.

Dr. E. E. Feild exhibited a seaman, forty years of age, who had fallen fifteen or twenty feet to the deck of his vessel, fracturing the

spinous and transverse processes of the second lumbar vertebra, or that portion of the spinal column which forms a conduit to conduct the medullary substance.

The accident had happened about ten days before the case reached the hospital; at that time there was suspension of both motion and sensation below the injured region.

A laminectomy disclosed the condition responsible for the objective symptoms—that is pressure from the fractured segments of the posterior arch.

These fragments were restored as far as possible to their natural position, and the chest was enclosed in a cast. This was about two months ago and you see now how he walks with almost an imperceptible limp, due to long muscular inactivity. Sensation too has returned and there is no vesical interference. I should say that the results in this case were rather remarkable because we seldom get so complete a return of lost motor and sensory functions, and I never hoped to see so perfect a restitution, because my experience with these spinal fractures has never been so uniformly fortunate as to lead to sanguine expectations.

Injuries of the Sacro-Iliac Joint.

Dr. R. L. Payne, Sr., opened this discussion and said he would not present a paper because he had an engagement to read one on this subject at a surgical convention which was to meet very shortly in Washington. He desired, however, at this time to express his unalterable opposition to the theories now being promulgated by Goldthwait of Boston, by Meisenbach, Painter, Osgood, and all other surgeons and orthopedists who agreed with them.

"I maintain," said *Dr. Payne*, "that the closeness of apposition of the bones of the sacro-iliac articulation, the unevenness of their surfaces or fitting edges, the strength of the ligamentous structures in their vicinity, and the small amount and dense nature of the intervening substance admit of no perceptible movement, and that any such thing as subluxation, so extolled by Goldthwait, is nearly as impossible, and quite as absurd as a reference to dislocation of the cranial bones would be."

Here *Dr. Payne* exhibited a skeletal pelvis which he described at great length, showing how the triangular sacrum, or great vertebra as the Greeks called it, was wedged in between the ilia, completing the wall of the pelvis above

and behind and forming the keystone to the arch of the pelvic girdle.

Especial attention was called to the eminences, roughnesses and depressions of the posterior surface of the sacrum to which the powerful posterior sacro-iliac ligaments were attached, holding the sacrum and the ilium in the closest juxtaposition, as indeed it must do if the normal relations between the trunk and lower extremities are to be maintained.

It is an error to suppose that because the base of the sacrum in the upright posture projects forward much beyond the auricular surface that the bone necessarily moves, or has a disposition to rotate about the place of support, under the influence of pressure of the superposed column, because that tendency is offset by the powerful posterior sacro-iliac ligaments, just as the ilio-lumbar ligament, in supporting the base of the column, tends to prevent the fifth lumbar vertebra from slipping forwards over the base of the sacrum. The sacrum is virtually suspended by the posterior sacro-iliac ligaments, and by them is tied to the ilium.

Goldthwait states that there is a normal relaxation of these joints owing to a passive congestion during pregnancy, a statement we might be willing to accept, but that the same thing obtains in menstruation, is certainly beside the mark, is across the line, is riding a theory to death. Votaries of particular subjects usually become so enamoured that they lose a certain sense of proportion, and wind up with an obsession wild, weird, and fanciful, just as we have now in the case of the Boston Orthopedist.

To believe that just a mere stumping of your toe may result in a subluxation of such a powerfully guarded articulation as the sacro-iliac articulation, and then the application of adhesive plaster over such dense soft parts as we have at the back and buttocks, muscles, ligaments, fascia, fat and skin, will result in the restoration of these separated surfaces requires more faith than I possess, and is of the nature of an *ignis fatuus*.

Dr. Israel Brown said that before we could have an intelligent conception of the injuries of the sacro-iliac joint as demonstrated by Goldthwait, Meisenbach, Osgood and Dunlop, it will be necessary to have a very modern knowledge of the anatomy and physiology of the spinal column as it exists in man.

Practically, and briefly, we have the column of the bodies, anteriorly, essentially supporting

in function, and, posteriorly, the column of the arches, carrying the medullary substance, serving for the attachment of the spinal muscles and ligaments, and, secondarily, supportive. The spine of the erect mammal presents four curves, two convex backward—the sacral and the dorsal kyphoses, and two convex forward—the cervical and the lumbar lordoses.

These physiological antero-posterior curves vary in health of course with age, race, muscularity, adiposity, and nature of calling, but with these we are not concerned this evening.

In intra-uterine life there is a general kyphosis, and at birth the spine above the sacrum is almost straight. Now the post-natal development of the physiological curves is compensatory in character, neutralizing the primitive general, kyphosis, or humpback, as indeed they must do if man is to stand erect.

This alteration from the one backward curve of horizontal mammals, to the two backward and two forward, curves of the erect mammal is effected through the instrumentality of the intervertebral discs, and the spinal muscles. Anatomically speaking, we would have this sort of vertebral column:



WITHOUT DISCS.

WITH DISCS.

Some of these discs are thicker than others, some are wedged-shaped, thicker in front than behind, especially the disc between the last lumbar and first sacral vertebrae. They are firmly attached to the vertebrae, very elastic, and compressible, form synarthrodial joints, permitting movements in all directions within the limits of their elasticity and the restrictions imposed by the configuration of the bones. Where the proportion of disc to bone is greatest, as in the lumbar and cervical region, movement is greatest, and where disc is least, movement is least, as in the dorsal region.

Now the mistake I think Dr. Payne has made here this evening is his assumption that the iso-

lated sacrum he has shown articulated with its ilia, behaves exactly as it would do in the intact living body, and I have gone into this anatomy really to show that there cannot be any such comparison. He might have at least gone into Lovett's experiments, comparing as he did the cadaver with the living model, experiments that are themselves open to the argument that the spinal column, composed of bodies and discs alone, hardly acts exactly as the intact spinal column would do, but it would certainly more nearly approximate the living subject than this skeletal articulation of the pelvis I now hold in my hand, devoid of all soft parts, synovial membrane, cartilages, muscles and ligaments.

In flexion of the spine, for instance, the lumbar region plays the chief part, the lordosis almost becoming a kyphosis. Can you get any flexion out of this skeletal spine with no discs between the vertebrae whose very compressibility permits the flexion movement, and whose elasticity restores the original posture? How then, can you use bones dried and shrunk to a shell, stripped of all their habiliments, for purposes of comparison? If we were now to build up the spine from this sacrum without the intervertebral discs we would have the kyphotic spine shown in the sketch, exactly the condition we have in spondylitis deformans, where the intervertebral discs have atrophied.

In life this sacrum had a disc attached to it, and this ilium a disc attached to it, so that there were *two* discs between their articular surface then, upon which they glided as arthrodia, but now their bony surfaces are in mutual contact and there is not even synovial fluid to lubricate them.

Dr. Payne has spent a large part of this evening in an attempt to disprove the condition of *subluxation*, objecting especially to the term which he considers misleading. Well, what I understand a subluxation to be, and I think I can show that it happens in this joint, is a *partial dislocation*, that is where some point of the joint surfaces still remain in contact.

Now when we have a separation of joint surfaces by a rupture or stretching of joint ligaments with an immediate return to normal relations the condition is known as a *strain* or *distortion*. Dr. Burnley Lankford's case belongs to this class, and for this reason, when he stepped backwards out of his car, and the pavement was farther than he thought, the sudden jar of con-

tact partially and momentarily dislocated the right sacro-iliac articulation, rupturing ligamentous fibres, producing such soreness as to require mechanical assistance in walking; and then follows the characteristic limp which Dr. Lankford evinces, as now he walks before us; the right sacro-iliac ligaments being on guard, as in any other joint sprain.

Now as to subluxation, we offer the following authorities who substantially agree with Goldthwait; Howard Kelly, who devotes five or six pages of his recent work on Medical Gynecology to an elucidation of the Goldthwait ideas; Keen, Whitman, Edgar, Johnson, von Bergmann, Quain, Munford, Murphy, Ochsner and lastly Tubby, who of all writers has more nearly succeeded in establishing the truths of the sacro-iliac joint as conceived by Goldthwait, and slowly and surely incorporated into the medical knowledge of the day by him.

As to the joint motion itself: we are agreed, I think, that the mechanism of labor is directly affected by the changing diameters of the superior and inferior straits as the sacrum moves backward and forward. Well, this excess of motion, physiologic in this case and due to a passive congestion, presupposes a certain degree of motion normally, because we could not get excess of motion where none existed before under any conditions unless we had a fracture. Such movement as exists at the pubis in labor of course is preceded by the movement of the ilium at its articulation with the sacrum; otherwise, the pelvic girdle would be a box and might as well have been constructed of cement.

Nature has never been so lavish, nor has ever had the habit of so bountifully supplying us with useless appendages as to construct a perfect joint, with all of its appurtenances, capsule, synovial membrane, cartilage, etc., and then made no use of it whatever.

In all anatomy function necessarily precedes structure, determines what the nature of that structure shall be, and calls it into existence by the uses to which it is to be put. No joint has developed fully as this joint has for which there was no necessity, and for which no duty was provided. Nature is not in the business of producing landscapes, and sunsets, and does not elaborate joints to indulge a sense of perspective. She is quite without imagination.

Now, then, being a true joint, supplied with all essentials, it is liable to the same diseases

and injuries that the other joints are liable to, and requires the same kind of treatment, rest, fixation, support, relief of conditions which may be responsible for relaxation, or arthritis and subject to general, constitutional states, that often manifest themselves secondarily in this most important of the joints.

Dr. Gwathmey is moving very stiffly around here this evening, as if there were some trouble with his synchondrosis, though I have had no opportunity to ascertain the class to which his spondylitis belongs. However, I might conjecture a postural strain.

Dr. Lomax Gwathmey said it was to be hoped that some *via media* might be found between the "subluxationists," the "relaxationists," and the "hypermotilityites"; that while the art preservative is the most steadfast of human arts, riding us like an incubus, often we have been able to get away from old beliefs when facts of recent acquirement had shown the old positions to be untenable.

Back in 1886 Grailley Hewett and Ramsey came over from London to discuss with Emmett and Thomas and others before the American Gynecological Society the question of *Anteversio*, which was mightily agitating the profession at that time, and to tell just exactly how the intrauterine stem pessary was to be applied.

We could not have made them see then the inutility of such discussions, and such methods, but we know better now.

It took such mighty surgeons as Billroth, and B. von Langenbeck, and Dieffenbach and Dupuytren and Stromeyer to break away from the teachings and influence of Ambrose Paré, who lived three centuries before. However vigorous a surgeon he was, and he initiated the surgical renaissance of the sixteenth century, he was yet so trammelled by tradition that he discontinued his method of putting the fractured forearm in the supine position when he discovered that Hippocrates had advised against it.

And so now the profession listens skeptically to Goldthwait, and Meisenbach and Osgood when they talk about "forward and backward displacements," a "loosened sacrum," "relaxed joints," "lumbo-sacral disarticulation" and wonder what these men mean by the injection of such terms into our vocabulary.

Have we not always known that pain in the small of the back meant *lumbago*, and that that was incident to *rheumatism*, a thing that has

always been so eminently satisfactory to us to know because it was so enlightening, and have not we always given wine of colchicum seed and the salicylates, and with good results? And now we are told that we did not know any such thing, that these backaches and sciaticas are due to a *slipping* of the sacro-iliac and sacro-lumbar spines, with pressure upon the sympathetic ganglia that lie in their neighborhoods, and that we must set about to correct these malpositions if we would do away with *backaches*. And so the profession is somewhat wrought up, and after consultation it tells these orthopedists that the old anatomists did not say there was any *motion* between the sacrum and ilium; in fact, they said there was not any.

And so the vortex whirls, engulfing many who are unwilling to leave the old positions still believing that the old masters knew more about the body than their successors of to-day.

The obstetrical text-books, however, have taught with considerable unanimity that under certain physiological conditions, as in pregnancy and labor, the sacro-iliac synchondrosis yields and admits motion like a true joint.

Well, these orthopedists are offering now the information that the pelvic joints are not stable but admit an *abnormal amount of motion under a wide range of conditions*, and that this abnormal motion, the conditions of which have been very ably set forth by Dr. Brown, are the responsible factors in the heretofore unclassified backaches, sciaticas, and paraplegias.

Albee injected methylene-blue into the sacro-iliac joints of cadavers and demonstrated the presence of such anatomical structures as hyaline articular cartilage, synovial membrane, capsule, and supporting ligaments, settling that much of the controversy with the old anatomists and surgeons by showing this to be a true joint.

Now, then, we know that the pelvic girdle is the main support of the trunk, and viscera, and the upper extremities since man has assumed the erect position, and that this girdle is held together by ligaments, and that there is no other bony connection between the trunk and the lower extremities than the sacrum in its iliac rests.

We have here two opposing groups of muscles, one radiating from the pelvis downward, and the other from the sacrum upward, the sacrum being the fixed point of each, offering all the resistance there is to offer through its ligamentous attachments to the powerful muscles that pull from above in one case and to those that pull from below in the other.

It is easy to see therefore, that if the ligamentous or pelvic fascial supports are weakened, or stretched, or injured, or that there is some constitutional or phylogenetic reason for their psychasthenia, the points of fixation between the sacrum and ilia, or sacrum and lumbar spine will give away and there will be approximate luxation or hypermotility, or relaxation, or whatever it may please you to call it. A joint that as much is required of as is required of the sacrum with only ligaments to support it, must of necessity become frequently disabled; disabilities that will manifest themselves in the maladies that have been worrying and wearing humanity for so long a time and that promise now a complete and scientific classification from the hands of Goldthwait and his disciples.

Dr. Gwathmey said, in conclusion, that he was particularly interested in the development of this subject, and had watched the progress of the Goldthwait ideas closely, for the very personal reason that he occasionally had a severe sacro-iliac strain of his own, being somewhat long coupled as he is! This past week, for instance, he had performed a number of operations that were tedious and difficult, and in some instances upon lower operating tables than he was accustomed to, and he was now experiencing acute sacro-iliac pain. "Certainly this time there is no hypermotility", said Dr. Gwathmey, "because the fact is I can scarcely move at all."

X-Rays of Sacro-Iliac Joint.

Dr. Jas. L. Culpepper, in conjunction with



Dr. Jas. W. Hunter, exhibited two X-Ray pictures of sacro-iliac disease. In the first picture shown, there is asymmetry, the crest of the ilium being slightly higher on the right side, imping-

ing against the transverse process of the fifth lumbar vertebra, which is itself a shade longer than the left. This man for years has had such severe pain just over this area that often he was forced to discontinue his work and seek relief in absolute rest. He had been treated for rheumatism, spondylitis, syphilis, tuberculosis, and without relief. The pain kept up in the small of the back and on the right side.

Dr. Culpepper had been much impressed with the writing of Goldthwait, and intended to fit himself for the correct diagnosis of these intractable backaches, many of which had gone for years without the slightest relief from the use of the usual professional methods. So he had Dr. Hunter take this most impressive picture, which shows the condition to be one of those asymmetrical morphologic states especially written of by Meisenbach, a pupil of Goldthwait. The temporary application of stout and successive layers of adhesive plaster have so relieved the man that he is now able to resume his duties because of the partial immobility thus affected. There is little doubt that the application of the Goldthwait jacket will enable this man to regularly discharge his duties, and resume his normal relations with life; if not, the transverse process can be shortened.

The second case, shown in picture 2, is one of hypermotility from relaxation of the sacro-



sciatic ligaments. This is a colored woman whose sacro-iliac relaxation was in all likelihood preceded by pelvic congestion and inflammation, a condition so thoroughly developed by both Goldthwait and Meisenbach.

The picture is most interesting because it

displays, as you see, the lip or the notch between the upper surfaces of the sacrum and ilium at the sacro-iliac articulation, the sacrum having glided forward and away from the ilium. The dark line all along this right ilial articulation marks the site on the ilium that the sacrum has normally occupied, while the deeper and heavier sinuous line is the subluxated sacrum itself. This is so remarkably clear a demonstration of hypermotility as shown by the X-Ray that I should much like Meisenbach to see it. This forward movement of the sacrum is the one Dr. Payne considers so improbable; certainly there is no mistake about its having happened here.

Just a year ago Meisenbach wrote that very few X-Rays had been published showing a dislocated sacro-iliac synchondrosis; in fact, he did not recall any, that he himself had had great difficulty in making such a demonstration by the ordinary method of radiography. This he thought was due to the obliquity of the joints and the frequency with which a dislocation reduced itself when the patient was quiet.

Anybody can see the open joint in this case. Dr. Hunter is to be felicitated upon the beauty of these pictures.

Dr. L. T. Royster remarked that he had seen a case of sacro-iliac strain, with constant backache a few weeks ago, in which the application of a steel support to a flat foot had relieved the symptoms. The flat foot was the factor in the asymmetrical pelvis in this case, and was responsible for the sacro-iliac strain.

Section adjourned.

EIGHTH MEDICAL COUNCILLOR DISTRICT WITH GUILFORD COUNTY MEDICAL SOCIETY.

The second annual meeting of this Society was held at Greensboro, N. C., March 7, 1912. In the absence of the President, Dr. Stanton took the chair.

The Address of Welcome was delivered by Dr. Rigdon O. Dees, Secretary of the Society. Reading and discussion of papers was then in order.

Dr. G. W. Norman, Pomona, N. C., read a paper* on

Treatment of Shock of Hemorrhage.

DISCUSSION.

Dr. Moore: Dr. Norman spoke of not tying the ligature above the point of injection. In

*This paper appeared in the *Semi-Monthly*, April 26, 1912, before these Discussions were received.

these cases where profound shock is present and you do not want to confine that blood in the arm, it seems to me that if you open the vein, the vein above that point should be wrapped until you tie this suture around your needle or around your vein, in order that air bubbles will not gain entrance to the vein.

And, another point, I have been using in giving the 606, if you cannot get the hot water bottles to keep your solution at the proper temperature in the container, and, as it is one of the principal things to keep your solution hot in the treatment of shock, I have been using a rather long glass tube, and you can keep the solution in the container warm by holding your hand over an alcohol lamp. You can keep the solution at a temperature approximately correct. I find this a great thing in giving 606. I believe in keeping the solution warm, as it is one of the main things in reducing the bad symptoms of shock. I thought I would mention this. It is easy, after you have thought of it, to put an alcohol lamp on the table, and let this lamp heat the solution after it passes through this glass down close where you are injecting, and, therefore, the solution is not cooled by the long tube.

Dr. Robeson: I have been using in giving 606 a tube that is made by a doctor in Philadelphia. It is a tube within a tube with a vacuum between. You can start in your solution, and at the end of half an hour you will find that it has not dropped more than one degree. It keeps your temperature at just what you started it. The tube has a thermometer around which the water flows, and you can tell in an instant just what your temperature is, and this thermos keeps the water warm the whole time it is being given.

Dr. Duncan: The same principle that we have been using for about six months. I was struck with one thing in dissecting off the skin. I have found that in most cases it is really not necessary to do much dissection except over the vein.

Dr. Williams: I think we are getting off the subject of shock. I appreciate Dr. Norman's paper, but I do not think that it has been discussed at all. He pretty thoroughly covered the ground, is my idea.

Dr. Norman: In reply to the gentleman's remarks, in shock from hemorrhage these veins are very hard to locate, and the reason why I

advise that flap there is that we know the veins are there, but cannot find them, but in giving 606 I do not make any incision in the skin at all, but where you have reduced veins there it makes the matter different altogether.

Dr. W. P. Beall read a paper* on

Heart Tonics—Their Value and Limitations.

DISCUSSION.

Dr. Bahnson: I am afraid that the doctor's paper is so complete that I can add nothing to it, but there is one remedy that I am very partial to, and he has not spoken of, and I would like to have his idea of, and that is caffeine.

Dr. Hill: I came to sit rather at the feet of Gamaliel and drink in the good things that come along than to attempt to display my own true country doctor's ideas. I am as modest as the two gentlemen from Randolph County, and I think, as Dr. Bahnson, that he has covered the ground so well and completely that a country doctor who is as modest as the Randolph County gentlemen could not go into any discussion. I want to say, however, that when we get these nervous heart cases, and many of them are so, I have found good results in giving stramonium, and, as far as I know, it is harmless, and I think beneficial.

Dr. Cole: Lately I have run upon two cases which have been very interesting to me. In these cases I made diagnosis of low blood pressure. They complained of dizziness and cold extremities. The first of these was a lady who had been suffering with that condition for three or four weeks, and upon examining her I found that she had had a severe course of calomel, but was unable to find anything or any reason for her condition other than the low blood pressure. The heart sounds were weak and the pulse was weak. She had practically a case of low blood pressure. I administered strychnine and digitalis, and in three weeks she was practically a new woman.

The other case was a lineman who had suffered severe shocks and was suffering with dizziness and numbness of the arms and limbs and a certain amount of depression. The heart sounds were faint. We administered to him the strychnine and digitalis and found in a week or so that the circulation was better, the pressure was increased, and the general symptoms had left him entirely.

*For paper, see page 106.

I did not know whether there was anything written on the subject of low blood pressure or not, but in these cases that we have recently run upon we could find nothing except the low blood pressure, and I should like to hear from the rest if they have had cases that responded as nicely as these did.

Dr. Beall: I have very little to say in answer to the discussion, except that I did not attempt to discuss in this paper heart diseases. I presumed that these gentlemen were familiar with the various phases of heart trouble. I am more inclined to discuss the remedies to use and the conditions to be met, and I tried to indicate these conditions as a basis for my paper.

To Dr. Bahnson I would say that I have used caffeine as a heart tonic. It seems to increase the tonicity of the heart. I presume that it would be a good tonic, though in my experience I have never found it very valuable, and, like several other heart tonics, I ignored it in this paper, as I intended to draw attention to the common heart tonics.

(To be continued.)

Analyses, Selections, Etc.

Normal Human Blood Serum.

J. Edgar Welch, New York, in a paper dealing with this agent in obstetric and pediatric work, says that nutritional experiments with injections of alien serum into guinea pigs have proven that it causes either a retardation of growth or the death of these animals. Reviewing in a few words the effect of subcutaneous injections of alien serum, we have the following: 1. Serum sickness with its fever, disturbing urticaria, joint pains, dyspnea, albuminuria, hematuria, and occasionally, sudden death. 2. It reduces blood-pressure. 3. It decreases the coagulability of the blood. 4. It causes a reduction in the amount of complement. 5. It interferes with nutrition.

Subcutaneous injections of homologous serum do not produce these conditions. For the sake of comparing the nutritional effect of homologous with alien serum, an experimental study with normal human blood-serum was made. The subject was an infant born at about the eighth month of gestation. It took nourishment by mouth badly and steadily declined in weight from 2025 grams at birth, August 17th, to 1625

grams, September 5th, a loss of 400 grams in nineteen days. On September 5th, injections of normal human serum were begun and were continued through twenty-one days, to September 26th. The baby's food remaining the same as previously, the weight began immediately to increase, and suffering slight fluctuations, gained steadily for fifteen days to 2200 grams, a gain of 575 grams. It then receded during the next six days to 2125 grams, which was more than the weight at birth. During this period the child received daily subcutaneous injections of normal human serum in amounts varying from 20 to 78 c. c., receiving a total of 896 c. c. in twenty-one days. At this time the child was taken away in good condition and able to nurse well.

Of other conditions in which the writer has had experience in the use of normal human serum, the various bleeding conditions rank first, and of these, more especially the hemorrhages of the new-born. Its infrequency and the rapidity with which it proves fatal make it extremely desirable that we have a well-known specific, easily obtainable, with which to combat it. The beginning of this condition is not always the same. The baby may be in every way apparently healthy, plump, rosy and functioning normally. Without warning, it may vomit a quantity of fresh blood or pass bloody or tarry stools, and these may be the only manifestations of hemorrhage. The bleeding may be subcutaneous, of a petechial nature, or occur as hematoma. The umbilical stump, a divided prepuce or the gums may be the site of hemorrhage. Fatal internal hemorrhages not infrequently occur without external manifestation and may affect the brain or any of the thoracic or abdominal organs. These cases may clinically show icterus, or the patient may simply grow pale and feeble and die without apparent adequate cause. Drawing a conclusion from experience with thirty-two cases, the author is convinced that normal human blood-serum is a specific for the condition. The author believes that the underlying condition in these cases has to do with the endothelium lining the blood-vessels; and that a disturbance in the balance of the ferments of these cells is the immediate cause of the hemorrhages. He is of the opinion that this disturbance is due to malnutrition which, however caused, has the same result.

Clotting in the tissues does not occur after the use of normal human blood-serum. The

hemorrhage is stopped through some process other than that of coagulation, and the blood of existing hemorrhages is absorbed without having formed clots. The effect of the serum in controlling it seems to be through its nutritional effect, especially upon the endothelium lining the blood-vessels. These hemorrhages usually occur after some special disturbance of nutrition. The latter may be more or less chronic, with considerable wasting of the general tissues before the hemorrhage begins; in other cases, it seems to be more acute and a condition of toxemia or septicemia. In the first instance, a species of autotoxemia results, originating in the excessive growth of pathogenic bacteria in the intestinal tract with absorption of large quantities of toxins. In the second instance, a septicemia occurs with growth of bacteria in the blood stream, producing a profound systemic poisoning. The disturbance operates to upset the balance normally maintained between the ferments and anti-ferments native in the cells, thereby producing conditions leading to hemorrhage. The normal serum is a prepared food having molecules with receptors which fit the receptors of the cells of the endothelium which, in that way, is capable of being incorporated into the cell body as nourishment without any energy being wasted in the process of digestion. The nutrition being thus easily restored, the balance of ferments is reestablished and the hemorrhages stopped.

Normal human blood-serum appears to have considerable value in septic conditions. Used in four cases of bacteremia, two patients recovered and two died. Two patients with very grave peritonitis recovered after the injections.

In cases of meningitis caused by the staphylococcus, streptococcus and pneumococcus the injections proved of no value, possibly because they were so far advanced in the degenerative processes caused by the bacterial toxins in the parenchymatous organs, that recovery was impossible; though the bacteria may have been killed or their toxins neutralized.

The injections have proved of value in controlling hemorrhage which occurs after operation on deeply jaundiced persons.

The serum is so easily obtained that the author sees no reason for using whole blood, especially in babies, which possibly reduces the strength of the child, already at its lowest ebb. Transfusion, which has been so much employed, is

of value, but it is accompanied by certain dangers. Hemolysis, thrombosis and embolism, all or any of which may lead to the death of the patient, are to be feared. The disadvantages of transfusion are, first, the difficulty of the operation, which is not so simple as many suppose; second, it is frequently necessary to use the method several times on the same subject, and in this it has certainly a great disadvantage, while, on the other hand, normal human blood-serum can be repeated frequently and used indefinitely. In cases of very marked depletion from prolonged hemorrhage in which the cellular elements of the blood are greatly diminished, the only measure to be employed is transfusion. —(*American Journal of Obstetrics*, April, 1912).

Syphilis Relapses Under Mercurial and Salvarsan Treatment Respectively.

In the *Journal of the Royal Army Medical Corps*, Harrison writes on this theme. He believes that in untreated cases of syphilis and those under mercurial treatment, the character of the symptoms is generally in accordance with the time which has elapsed since the primary sore made its first appearance. The intervals between the successive stages may be lengthened by mercurial treatment, but, speaking generally, early symptoms are not repeated. Thus, primary sores do not recur two months or longer after they have healed, nor do early secondary rashes return in any high proportion three months or more after they have disappeared.

With salvarsan-treated cases, the experience at the Military Hospital, Rochester Row, has been different from this. Of the cases suffering from primary sore only, which were treated with salvarsan, active signs returned in five after intervals of two-and-a-half to ten-and-a-half months, and in four of these the only sign of the relapse was the chancre, which recurred two-and-a-half, two-and-a-half, ten-and-a-half, and three-and-a-half months respectively after first healing. Out of eleven cases which suffered from early secondary rash, when they first came under treatment and subsequently relapsed, in eight the same rash returned, twelve, four, three, ten, seven, seven, four and seven months respectively after it had first disappeared. One of these cases was instructive in this respect. He was first treated with salvarsan for roseola, sore throat and synovitis,

all of which rapidly disappeared after the injection. Subsequently, he suffered from two relapses, which occurred three and six months respectively after the first injection: and on each of these occasions all the before-mentioned symptoms returned.

The sequence of events in syphilis, which has been roughly divided into primary, secondary and tertiary, and parasyphilis, is capable of two explanations: (1) That the spirochæta pallida undergoes a series of changes when resident in the tissues, and that in each of these successive phases the symptoms to which it can give rise are peculiar to the stage at which it has arrived. (2) That it is the tissues which change, so that the longer the spirochæta acts on them, the more the lesions which result from any increased activity of this parasite approach, first, the characters peculiar to the so-called secondary, and then those of the tertiary stage.

The first explanation would be difficult to prove; and against it is the fact that infection with spirochæta derived from a secondary or tertiary lesion results in a primary sore. In favor of the second explanation is the well-known fact that in the majority of cases of syphilis, whether untreated or treated with mercury, reinoculation does not result in the production of a secondary chancre. As Queyrat showed, this refractory behavior of the skin and mucous membranes to infection from without is gradually developed during the ten days which succeed the appearance of the primary sore; as the end of this period approaches, the sore resulting from reinoculation becomes more and more evanescent till, finally, no chancre follows. Finger and Landsteiner succeeded in producing skin lesions in such cases by inserting large amounts of syphilitic virus in pockets under the epidermis; these were not chancres, however, but simulated the lesions from which the patient was suffering at the time.

Thus in the secondary stage a papule followed the inoculation, while in patients suffering from gummata or ulcerating syphilides, identical lesions formed at the sites of inoculation. That these were due to the newly introduced spirochæta, and not to those already infecting the patients, was shown by the fact that if the former were previously killed the result of the inoculation was negative.

The evidence is, therefore, strongly in favor of the theory that it is the length of time during which the spirochæta have acted on the tissues which determines the characters of the successive manifestations of syphilis.

If we accept this view, the nature of the above-mentioned relapses in cases treated with salvarsan only indicates that from the date of the last injection till shortly before the appearance of the clinical symptoms the spirochæta had not been active in the majority of cases. This is supported by the fact that in most of these the Wassermann reaction had returned to positive only three or four weeks before clinical symptoms returned, and it shows that, unlike the case with the great majority of patients who are treated with mercury, the latency was not apparent only, but real. It remains to be seen whether cases which relapse clinically many months after the Wassermann reaction has returned to positive will have symptoms of a later type than those for which they were first treated; since the Wassermann reaction, as ordinarily elicited, is not an index of immunity, but closely accords with the activity of the parasites, it is to be expected that they will.

Further evidence of the superiority of salvarsan over mercury in its action on the *S. pallida* is afforded by the cases of reinfection which have been recorded; one undoubted case of this kind has occurred at Rochester Row.

From the above it would appear:

1. That salvarsan has a more intensely specific action than mercury.

2. That, even if a relapse does occur, as the patient's tissues have been free from the action of the spirochæta for the greater part of the interval, other things being equal, his health should be better than that of the patient who is treated with mercury only.

3. That, if subsequent events justify the hope that a salvarsan resistant strain of *S. pallida* is not produced by repeated injections, it should be possible to prevent patients who are still in the very early stages of syphilis from developing any symptoms of a later type. To accomplish this, however, it would be necessary to watch each patient carefully, especially with regard to his Wassermann reaction, and to repeat the treatment on the least indication of the latter returning to positive.—(*Therapeutic Gazette*, April, 1912).

A Means of Controlling the Hemorrhage from Inoperable Neoplasms of the Bladder.

L. Bolton Bangs, New York, states that one can relieve the hemorrhage from tumors of the bladder, which are a cause of great apprehension to the patient, by the use of a solution of creolin injected into the bladder. Creolin is an antiseptic with hemostatic properties. The author gives the histories of four cases in which it was used with benefit. A 1 per cent. solution is found to be efficient for this purpose. It relieves irritability of the bladder at the same time that it reduces the loss of blood, and in some cases it reduces the size of the tumor. The author has found no value in the use of ascitic serum or of trypsin in cases of cancer of the bladder. In one case the Hodenpyl serum was used persistently for a long period without any apparent benefit. Although there is no permanent cure to be hoped for by the use of creolin treatment, still the life of the patient is made more comfortable and often prolonged considerably.—(*Medical Record*, August 19, 1911).

Some Experiences With Russo's Typhoid Fever Test.

F. W. Rolph and W. Harper Nelson, Toronto, Canada, present an account of their experiments on fifteen cases in the Toronto General Hospital with the use of Russo's test for typhoid fever. The test is simple and easily performed. It consists in the addition to the urine of an aqueous solution of methylene blue; in cases of typhoid fever a mint or emerald green color is produced. The urine should first be tested for bile, as the presence of this confuses the test. To get positive results the test should be made very early in the disease. The slightest tinge of blue indicates a negative result.—(*Idem*).

Editorial.

Commencement Exercises of the Richmond, Va., Medical Schools.

Unusually handsome programs heralded the Commencement Exercises of both the University College of Medicine and the Medical College of Virginia, and the pleasant entertainments provided for the graduates of both schools will long linger as pleasant memories in the

minds not only of the new graduates but also of the alumni who were fortunate enough to be able to attend. Both schools have done good work this year and had a number of graduates in medicine, dentistry and pharmacy. In both instances, the baccalaureate sermon was preached on the Sunday beginning Commencement week, by the Rev. W. Russell Bowie, at St. Paul's Church.

University College of Medicine.—The commencement exercises of this school, held May 19th to 23rd inclusive, were probably the most brilliant in its history, being a kind of jubilee on the completion of the new building erected on the site of the one destroyed by fire two years and a half ago. The building is handsome and complete in every detail, and in appreciation of the services rendered by Dr. Roshier W. Miller, chairman of the building committee, the faculty and other friends of the institution presented him with a beautiful silver service.

An innovation thoroughly enjoyed by the students and faculty alike was the introduction of Class Exercises, including a mock faculty meeting, on the evening of the 21st. The hits at the professors were accepted in good nature, as intended, and provoked much laughter and fun. Following these exercises, Dr. Robert C. Bryan was host at a reception given at the Westmoreland Club. The annual meeting of the Alumni Association was held in the new building on Wednesday morning, at which papers were read before the Medical Department by Drs. H. S. Cumming, U. S. P. H. and M. H. S., and Clyde Ross, South Carolina. After this luncheon was served at Hermitage Club, and followed by a reception at the Confederate Museum, prior to the unveiling of a tablet upon the new college building, commemorating the fact that upon this location once stood the residence of Alexander Stephens, the only vice-president of the Confederacy. At the general meeting of the Alumni that evening, Dr. B. K. Hayes, of North Carolina, and Prof. E. C. L. Miller, of the U. C. M., were the speakers. The gathering adjourned after this to attend a reception at the home of the president, Dr. Stuart McGuire. A number of clinics were held Thursday. At the closing exercises at the Academy of Music on Thursday evening, addresses were made by Dr. Stuart McGuire and Rev. Geo. W. McDaniel, with the usual reception later at the Westmoreland Club.

From the thirty-five graduates in the medical

department, the following hospital appointments were made:

Virginia Hospital—Dr. B. T. Fields, Dr. W. O. Cox, Dr. J. A. Cloyd.

St. Luke's Hospital—Dr. F. O. Swindell.

Hygeia Hospital—Dr. B. L. Crawford.

Sheltering Arms Hospital—Dr. Edward Bancroft, C. E. Foley (undergraduate).

Grace Hospital—Dr. G. Frank Highsmith.

City Home Hospital—Dr. Joseph F. Geisinger, Dr. T. V. Goode, Dr. H. A. Bullock.

Retreat for the Sick—Dr. T. B. Weatherly.

Home for Incurables—J. H. Earnhardt (undergraduate).

St. Vincent's Hospital, Norfolk—Dr. H. P. Moseley, Dr. C. C. Smith, Jr.

Gouverneur Hospital, New York—Dr. L. J. Freidman, Dr. A. F. Graham.

Flushing Hospital, New York—Dr. J. A. L. Wolfe.

Bellevue Hospital, New York—Dr. J. S. Edlin.

The Medical College of Virginia held its seventy-fourth finals May 26-28, inclusive. The greater part of the day on Monday was given over to demonstrations and medical clinics at the Memorial Hospital, with an intermission of an hour, at which time luncheon was tendered the graduates and alumni by the Executive Committee of the Hospital. A smoker was given that evening at the College building by the Adjunct Faculty, and the alumni Society also met at the College on Tuesday morning, Dr. Jos. M. Burke, of Petersburg, presiding. A luncheon was given that day by the Faculty. The commencement exercises were held in the City Auditorium, Tuesday evening. The address of the evening made by Bishop Dennis J. O'Connell was preceded by a historical sketch of the College given by the Dean of the Faculty, Dr. Christopher Tompkins. The Class reunion supper following was given at the Commonwealth Club.

An account of these exercises would seem incomplete without mention of the *Class Letters* published by the Class of 1908, M. C. V. Written by the various members of the class to the secretary of the class or his classmates in general, they give individual histories of the respective men since leaving college, which are quite interesting.

Forty-one young M. D.'s received their

diplomas from this school, the hospital assignments being as follows:

Memorial Hospital—Dr. B. B. McCluer, Dr. Joseph Bear, Dr. R. J. Wilkinson, Dr. R. P. Stryker, Dr. C. W. Haden.

Johnston-Willis Sanatorium, Richmond and Abingdon—Dr. Stuart McBryde, Dr. W. W. Hargrave, Dr. L. F. Cosby, Dr. S. B. Cary.

St. Elizabeth Hospital—Dr. J. F. Davis, Dr. J. W. Clarkson, Dr. G. R. Fisher.

City Hospital—Dr. R. L. Daniels, Dr. H. T. Hawkins, Dr. Holman Bernard.

St. Vincent's Hospital, Norfolk—Dr. J. W. Reed, Dr. R. D. Glasser.

Lewis-Gale Hospital, Roanoke—Dr. E. H. Luck.

U. S. Marine Hospital, Buffalo, N. Y.—Dr. A. F. Bagby, Dr. A. W. Lewis.

New York Polyclinic Hospital, New York City—Dr. A. S. Brinkley (class 1911)

Sarah Leigh Hospital, Norfolk, Va.—Dr. S. C. Darden.

Hydro-Electrotherapeutic Sanatorium, Richmond—Dr. J. C. Walton's Sanatorium, Dr. J. T. McKinney, Jr.

Philanthropin Hospital, New York City—Dr. David H. Shulman.

New York Urological Institute, New York City—Dr. Raymond C. Hooker.

The following changes of interest were made in the faculties of the two colleges for the coming year:

University College of Medicine—Dr. Jacob Michaux, one of the original members of the faculty, resigned the chair of obstetrics and was made professor emeritus of obstetrics.

Dr. Paulus A. Irving, who has moved to Farmville, was made emeritus professor of pediatrics.

Dr. John F. Winn, formerly professor of clinical obstetrics, was elected professor of obstetrics, and Dr. Virginius Harrison associate professor of the same branch.

Dr. Francis W. Upshur was chosen professor of materia medica and therapeutics, and Dr. C. Howard Lewis was made professor of pharmacology and associate professor of physiology, these two dividing the chair formerly held by Dr. Virginius Harrison.

Dr. E. C. L. Miller was elected professor of bacteriology and physiological chemistry.

Medical College of Virginia—Dr. Frank M. Reade was elected professor of obstetrics to fill

the vacancy caused by the death of Dr. D. J. Coleman, and Dr. R. H. Wright, of Richmond, was elected professor of ophthalmology and otology to fill the chair left vacant by the death of Dr. John P. Davidson.

Dr. Douglas Vanderhoof was elected professor of materia medica and therapeutics; Dr. B. W. Tucker, professor of neurology; Dr. E. P. McGavock, professor of dermatology; Dr. A. M. Willis, professor of abdominal surgery, Dr. C. C. Coleman, professor of principles of surgery; Dr. H. G. Latimer, professor of theory and practice of pharmacy; Dr. C. A. Ellett, professor of dental pathology and therapeutics.

At the request of Dr. George Ben Johnston, the title of his chair was changed to clinical gynecology. The title of Dr. J. S. Horsley's chair was changed to surgical pathology and clinical surgery.

Health Department, Richmond, Va.

Dr. E. C. Levy, Chief Health Officer of Richmond, and his able corps of assistants are to be congratulated on their last annual report, recently issued. As an evidence of the good work accomplished, there were 169 fewer deaths in this city during 1911 than during 1910, in spite of the increase in population. The average age at time of death was a little over 35 years. Typhoid fever had the lowest death rate ever recorded in this city, while the mortality from whooping-cough was greater than in 1910. Attention is called to the fact that whooping cough and measles, the most fatal contagious diseases of childhood, should be shunned rather than invited in accordance with the notions of some parents that these diseases are compelled to overtake the child sooner or later, and the sooner, the better. The death rate from suicide was greater than in any of the past five years, though no probable explanation for its cause was given.

In connection with the report on pulmonary tuberculosis, the statement is made that 77 patients were cared for and treated at Pine Camp, the hospital of the Richmond Tuberculosis Society, from the time it was opened in November, 1910, through 1911. There were sixteen deaths at the Camp last year, this high mortality being due to the fact that patients are received in the advanced as well as the beginning stages of the disease. Especial attention is again called

to the fact that the colored race in Richmond is dying out, and to the need of an investigation of the cause of their high death rate.

A fight is also being made in Richmond to prevent the high rate of infant mortality, much good work being done by visiting nurses. Altogether, the report will be found as interesting as it is commendable for the excellent work accomplished in all departments.

Rabies.

Owing to the increase in the number of cases of rabies throughout the State, repetition of advice given by the State Health Department "to keep all dogs muzzled until rabies disappears from the State" may not be untimely. While the Department treats free of cost all persons bitten by mad dogs, who are unable to meet the expenses for treatment at a Pasteur Institute, it first requires that it shall be definitely ascertained that the animal biting the patient has true rabies. Heads of such animals have to be sent by prepaid express, packed in ice, to the Hygienic Laboratory of the U. S. Public Health Service, Washington, D. C., as the heads cannot be examined by the State Department.

Fly Swatting.

In view of the number of fly swatting contests in progress throughout the State, the Virginia State Health Department has issued a special bulletin on the fly which may prove of interest and some assistance to those enlisted in the warfare. The fight against this special germ carrier has been undertaken on account of the ability of the fly to everywhere gain an entrance, and the rapidity with which they breed, it being claimed by some scientist that the descendants of a single fly during a season, should they all live, would number several billion. Undoubtedly health conditions would be improved by the extermination of this pest, and we wish the fly swatters success.

The Richmond (Va.) Hospital,

The only institution of its kind in the city, which cares exclusively for colored patients, held a campaign early in May for securing funds with which to enlarge their present quarters. It was organized with twenty-one beds in 1902 by several colored physicians, and

has met with marked success, proving a most worthy organization.

Another campaign was also launched upon the city a couple of weeks later to raise money for the construction of another hospital and training school for colored people to serve as a memorial to the old family servants of antebellum days.

Dr. Junius F. Lynch,

Norfolk, Va., has yielded to the importunities of the military authorities of this State to again accept the Surgeon-Generalship of the Virginia Volunteers, with the rank of Lieutenant-Colonel, from which position he recently resigned on account of his private professional duties. Dr. Lynch has always taken a keen interest in the building up of the medical corps of the militia, and his consent to resume the position will be gratifying to his military friends throughout the State.

The position of Surgeon-General was recently offered Dr. A. T. Finch, of Chase City, but he found it impossible to serve.

Catawba Sanatorium to Be Enlarged.

In view of the discovery of some probable legal difficulties as to the appropriation made by the last General Assembly for the erection of a reception hospital near Catawba, the State Board of Health has decided to expend the money given then for increasing the present facilities of the sanatorium, and to ascertain the will of the General Assembly in 1914 with regard to the erection of the much needed reception hospital. The present plans are to enlarge the sanatorium to approximately 175 beds, increase facilities for treating patients already at the institution, erect an infirmary, and to install an enlarged sewage-disposal system and a lighting plant.

The Vital Statistics Law,

Passed at the last session of the General Assembly of Virginia, will become effective in this State, June 15, 1912. This law, as previously stated in our pages, provides for the registration of every birth and death occurring in our Commonwealth, reports being made through County and District registrars to the State registrar connected with the State Health Department. Strict adherence to the law should prove of great assistance in reducing the rate of our mortality statistics, as it is believed that in Virginia,

to this time, there has been a more accurate record of deaths than of births.

The Bedford County (Va.) Medical Society

Held its last regular session at Bedford, May 27. Several papers were read by the members, and there was a liberal discussion of each subject. So interesting and instructive was this meeting that the Society agreed to meet hereafter quarterly instead of semi-annually.

Drs. J. A. Davis, Bedford, and W. O. McCabe, Thaxton, are president and secretary, respectively.

Dr. W. A. Shepherd,

Director of the Microscopical and Clinical Laboratories of the Medical College of Virginia, Richmond, announces that he is especially prepared for General Laboratory Diagnosis, including the Wassermann reaction for diagnosis of syphilis, the preparation of autogenous vaccines, etc.

The Medical Examining Board of Virginia

Will hold its summer session in Richmond, June 18-21, in the chapel of Richmond College, for the purpose of examining applicants for license to practice medicine in any of its branches. Dr. R. S. Martin, Stuart, Va., is Secretary of the Board.

Dr. W. M. Randolph,

Of Charlottesville, has been appointed by the Governor as a member of the Board of Visitors of the University of Virginia until February, 1916, to fill the unexpired term of the late Daniel Harmon.

North Carolina Medical College.

The first woman to graduate from the Medical College of North Carolina, Charlotte, was in the class of twenty-four who received their diplomas from that institution early in May.

The Baby Hospital, Richmond, Va.,

Under the auspices of the Instructive Visiting Nurses' Association, was opened May 25, for the summer months, in the suburbs of the city, at Lakeside Park. It is an excellent charity conducted by a number of young ladies in this city.

Wanted.—As pupil nurses at Catawba Sanatorium for tuberculosis, young women who are cured or arrested cases. Address, Miss M. E. Ewald, Head Nurse, Catawba Sanatorium, Virginia.

THE Virginia Medical Semi-Monthly.

(FORMERLY VIRGINIA MEDICAL MONTHLY.)

Vol. 17, No. 6.
Whole No. 390

RICHMOND, VA., JUNE 21, 1912.

\$2.00 a Year.
10 Cents a Copy

Original Communications.

HOW MAY AT LEAST 100,000 BABIES BE SAVED FROM AN UNTIMELY DEATH EACH YEAR AND SO LESSEN THE PRES- ENT FEARFUL MORTALITY IN THIS COUNTRY?

By E. MATHER SILL, M. D., New York, N. Y.

Attending Physician, Diseases of Children, Good Samaritan Dispensary; Lecturer, Diseases of Children, New York Polyclinic Medical School and Hospital.

To reduce the present high infant death-rate has long been a problem which has engaged the interest of physicians, and is every year attracting more and more attention from the public.

Startling statements were made by Prof. Irving Fisher, of Yale University, in his "Report on National Vitality" in the bulletin of the Committee of One Hundred, July, 1909, based on independent medical opinions, in which he emphasizes the possibility of a great reduction of the death-rate in infancy and early childhood. He gives the ratio of preventable deaths from certain diseases of early life in which the median age at death is under five years. Out of every one hundred deaths that occur from each disease, there could be prevented the following numbers: premature birth, 40; congenital debility, 40; venereal disease, 70; diarrhœa and enteritis, that most frequent cause of infant mortality, 60; measles, 40; acute bronchitis, "croup" (which means diphtheria), 75; meningitis, 70; scarlet fever, 50. "Convulsions," the median age of which is less than one year, has probably a ratio of preventability of at least 60 per cent. The term convulsions is a very indefinite one, since it is only indicative of the symptoms which accompany the true cause of death: nevertheless, the records show that 6,450 deaths were attributed to this cause in 1908.

Prof. Fisher's conclusions are that of all

the diseases of infancy (having a median age of one year), 47 per cent. may be prevented with our present knowledge of sanitation.

When we stop to consider the fact that this would be a saving of at least 100,000 of the 200,000 annual deaths reported in the registration area of the United States in 1908 (which represented 45,028,767 or 51.8 per cent. of the total estimated population of the country), and 200,000 of the possible 400,000 deaths in the whole United States, it is only too evident that practical sanitation and hygiene have made but small advance in the possible prevention of infant and child mortality.

Is it not time for the people of the United States, the Government and city officials, the doctors, the sanitarians and health departments to open their eyes to these facts and evolve means of stopping in a measure, at least, this avoidable mortality?

This reduction of infant mortality is largely a public health problem and should be dealt with by the people through the Government.

In examining the records for the year 1908 and 1909, we find that there were more than one-eighth of a million (136,432 in 1908; and 140,057 in 1909) deaths of babies under one year of age in about one-half the total population of the United States during each of those years, and about 200,000 deaths of little children under five years. The year 1908, according to the reports from the Government Bureau at Washington, D. C., was a year of remarkably low mortality throughout the United States, since there was a general absence of severe epidemics, or unusual mortality from other causes. The total number of babies that died during last year was approximately 250,000 in the whole of the United States.

These above quoted startling, and to many almost unbelievable, figures, showing the number of deaths of little babies in our land, makes the worst epidemics or plagues seem insig-

nificant in comparison and point of numbers, and shows only too plainly that our efforts so far to reduce infant and child mortality, although they have been in a measure fruitful in their results, are still inadequate to cope with this great problem and are not effectual or drastic enough to produce the results we ought to obtain.

Taking the deaths of children under one year of age, in the various countries forming the civilized world, we find that the annual number amounts to 3,243,958. This means a baby dies every ten seconds!

It is probable that the present death rate throughout the whole of the United States among babies under one year of age is 140 per 1,000, but even this means one death in every seven. Compare this with the annual death rate for all ages in the United States, the average for 1901-1905 being 16.3 per 1,000 population, and one's eyes are indeed opened.

It is well known that the death rate of a country is largely dependent upon its infant mortality, since a relatively numerous element of the population that die are infants.

With our present available means, and our scientific and medical knowledge directed aright, it would seem that a large proportion of these could be saved.

It is unreasonable to suppose that infants properly born (in other words having healthy parents), and coming into proper living conditions, by which I mean a healthy environment, should die in infancy or childhood except in cases of unavoidable accident, which constitutes a very small percentage of the number of deaths.

Let us inquire into the causes of this great sacrifice of human life! In examining the records for this country we find there are *three* great causes of infant mortality which overshadow all the rest, namely: diseases of the respiratory system, diseases of the digestive system, and diseases of early infancy. During the year 1908 there were 136,432 babies under one year and 27,833 over one and under two, making a total of 164,265 under two years of age that died from all causes in the registration area of the United States. Of these 20,408 under one year, and 27,767 under two years of age died of diseases of the respiratory system, 20,820 being of pneumonia; 41,462 under one

year, and 49,626 under two years of diseases of the digestive system; and 32,274 of diseases of early infancy, which comprises premature birth, 16,441 and congenital debility, 15,833.

Thus two-thirds of all deaths of children under two years of age are due to these three great causes, and one-half of all the deaths of children under two years of age are due to diseases of the digestive system and diseases of early infancy. Of the 49,626 deaths from diseases of the digestive system, we find 44,521 were due to diarrhœa and enteritis. One-fourth of all deaths are children under two years of age, and nearly one-fourth are children under one year, of which nearly a third die of diarrhœa and enteritis. Records show that in New York City alone, during 1908, there were 5,118 deaths from diarrhœa among children less than one year old.

Probably a large percentage of the diseases of early infancy (that is premature birth and congenital debility) are the result of venereal diseases, tuberculosis, or alcoholism in the parents.

Dr. Prince Morrow, of New York, an authority on venereal diseases and the social evil, states: "The problem of infant mortality is mainly a question of motherhood. Since the mother is the supreme parent of the child, a high standard of physical motherhood is the most essential condition of racial advancement. But a physical taint, such as gonorrhœa, or syphilis, may ruin the health of the mother and blight the future of the child." Again he says, "Syphilis is the only disease transmitted to the offspring in full virulence, killing them outright or blighting their normal development. When the father alone is infected the mortality is about 38 per cent.; when the mother also becomes infected, the mortality averages from 60 to 80 per cent. Fully one-third of all infected children die within the first six months * * * Fully 30 per cent of all infant morbidity is caused by syphilis. * * * The chancres of an infected child dying under fifteen years of age is nearly seven times greater than that of a child free from syphilis."

Children infected with syphilis are very much more susceptible to all infectious and contagious diseases than those born healthy. If such children do attain adult life and marry, they are liable to transmit similar organic de-

fects of the liver, central nervous system, bones, etc., to the third generation.

Although there has been a marked decline in the infant death rate during the past thirty years from contagious and diarrhoeal diseases, as shown by the records, there has been practically no change in the death rate from congenital debility. One-third of all the deaths during the first few weeks of life are due to congenital debility. It is clear then that our efforts should be especially directed toward reducing the death rate from congenital causes. This can only be done by education and supervision in general of the public and especially of pregnant women in regard to the care of themselves during this condition; such as proper food, hygienic surroundings, exercise, hygiene of their bodies, freedom from anxiety or overwork.

There should be a higher standard of education for midwives (who have the care of over 40 per cent. of the births in New York City), and they should only be allowed to practice after passing a thorough examination, and should be held responsible by the health authorities and the medical profession for all that these bodies may deem necessary in the way of obstetrical requirements, the neglect or ignorance of which should forfeit their license to practice midwifery. There is no doubt but that many infants, born of tuberculous parents, inherit a strong predisposition to that disease and easily succumb. Prof. Karl Pearson, of the Eugenic Laboratory, London, has brought forth very strong proof to show that tubercular diathesis is just as hereditary as any characteristic we know of.

In attacking these great causes of infant mortality, the keynote to the situation, it seems to me, is education of the people, and especially the mothers, in hygiene and dietetics, and also, as far as possible, in eugenics, since among the class of people where infant and child mortality is greatest, ignorance on these subjects is profound. I shall only be able in this paper to touch upon the points that might profitably be gone into in detail.

The maternal love is very great in all walks of life in this land of ours. It is not because parents wish to lose their little ones that they take such risks; it is because they do not know how to do differently.

Our work begins first with eugenics, and then with the expectant mother. Teach the people and the school children the importance of physical health and vigor in choosing a husband or a wife—soundness of mind and body, a body untainted by alcoholism, syphilis, tuberculosis, epilepsy, insanity, or other obnoxious disease. As we know among animals, like begets like, the strong beget strong and healthy progeny, and the weaklings perish or are slain by those stronger, it is a case of "the survival of the fittest."

If we wish to raise a fine specimen of a certain type of horse, we see to it that the parents of that horse are fine specimens of their kind; so we find it in a large measure with the human race. From healthy, large, strong parents, we may expect a similar type of child; it is a matter largely of breeding. True to type the offspring resembles the parents both in its ways and looks. Therefore, from weak, undersized, diseased, nervous or epileptic parents, we can only expect a weak, undersized, diseased, nervous, or epileptic baby, with little vitality and small chance of surviving, especially when born in poverty and with only ignorant people to care for it.

Where one or both parents are alcoholic, syphilitic, tuberculous, or epileptic, the child as a rule becomes a victim of the disease; and investigation has shown it to be only too true that "the sins of the fathers are visited upon the children unto the third and fourth generation." Children born from such parents die an early and miserable death unless kept under constant medical care and treatment, and, if they do survive, are cripples, invalids or mentally deformed.

Another reason for the high death rate among the babies of the poor is that so many mothers work at trades or in factories almost up to the time the baby is born. Statistics show that such babies are smaller than when the mother stops work two or three months previous to their birth; they are apt to be weaklings and consequently become an easy prey to disease.

Our slogan is keep the mothers from working in factories for several months before the end of pregnancy. Laws should be passed making it a crime for owners of factories to allow women to continue work up to the full term of pregnancy. This would be one way of sav-

ing many little lives. These are ways or reducing the mortality of diseases of early infancy.

Instruct the Mothers.—In a large children's clinic, which I have had charge of in New York City for the past ten or twelve years, and where I see and treat thousands upon thousands of babies each year for all manner of ailments, I find that three-quarters of my work is teaching the mothers how to properly care for, house, feed, and clothe their little ones. The lack of knowledge on the part of parents of the simplest rules of child diet, care, and hygiene, is astounding. These mothers are advised and urged, wherever possible, to nurse their babies at the breast, for a few months at least. The necessity of breast feeding cannot be dwelt upon too often or too strongly. It is estimated that 75 per cent. of the babies in New York City are breast fed. About 5,000 babies die of diarrhœa in New York City every year; 78 per cent. of all the deaths from diarrhœa are among bottle fed babies. A life insurance company states that in Hull, England, it was found that in their third quarter of the year, during a five year period, there were 991 deaths from diarrhœa of infants fed on a mixed diet, as against only 190 deaths from the same cause of infants entirely breast fed.

Nearly one-third of all deaths during the first year of life are due to diarrhœa, and diarrhœa is a preventable disease!

When the bottle and artificial feeding is a necessity, it is our duty to show the mother how she can modify the milk, making it suitable for the child's age, the kind of milk to use, the amount to be given at each feeding and the frequency of the feedings at different ages.

The great tendency of most mothers is to overfeed the baby and feed it too often, in some cases every hour or two, and then to wonder why it is that they have colic and vomiting all the time and the milk does not agree with them and they do not gain in weight.

There are several grades of milk now sold in New York City, namely: "certified" or "guaranteed" that comes in bottles, "selected" which is a good quality milk sold also in bottles, either raw or pasteurized, and loose milk sold from cans in the groceries and small shops for cooking purposes, but should never be given to the

baby. Wherever possible the baby should receive the "certified" milk, as that is the purest and cleanest, but more expensive, costing from fifteen to thirty cents a quart. Where parents even with some sacrifice in other directions, are too poor to pay for "certified" milk, there are many other brands of good bottled milk that can be purchased for less money, nine or ten cents a quart, and yet are safe; these milks, however, should be pasteurized during the summer months and then kept on ice until time of using.

Patent Baby Foods.—Parents should be warned against the use of patent baby foods as a regular diet for infants. These foods are all deficient in one or more of those nutritive ingredients, protein, carbohydrates, and particularly fat, which are necessary to produce healthy growth. Their prolonged use invariably results in an anaemic, malnourished, stunted, marasmic, rachitic condition, or brings about infantile scurvy. Nature has so constituted the child that it demands a fresh live food. In fresh milk we have this live food; all patent foods, condensed milk, or sterilized milk, are dead foods, since they are cooked. This is the reason why their prolonged use produces infantile scurvy.

Fresh Air and Sunshine.—Few mothers seem to know or realize how important it is that little babies and young children need and must have, in order to be strong and healthy, an abundance of good, pure, fresh air and sunshine. We should urge mothers to keep their babies and young children out of doors for four or five hours each day; when the weather will permit, take them to the parks, roof gardens, seashore, recreation piers, floating hospitals and pleasure boats, and to the country when possible. In winter they should only remain indoors during inclement weather, and then they can be dressed for going out and all the windows in the playroom opened where they can play and receive the benefit of the fresh air for several hours. This will prevent their growing up pale, delicate and nervous, with poor appetites, and becoming like hothouse plants.

Fresh air at night is as important as it is during the day; therefore, the necessity of properly ventilated sleeping rooms, which can be obtained by opening the window from the top or by use of the window board.

Proper Clothing and Warmth.—Little babies and young children are very susceptible to heat and cold, are easily made sick or prostrated by heat, and catch cold easily. This being the case, it is of vast importance that these little ones be dressed in a common sense manner, having light, cool, loose, clothing during the hot weather, and warm woolen garments during the cold weather. These are prophylactic measures that should not be forgotten. It is distressing to see a baby wrapped in bandages and swaddling clothes, and all broken out with prickly heat in the hottest days of summer; or dressed in thin cotton underclothing in mid-winter.

Cleanliness.—A great many mothers among the poorer class are too ignorant to realize the importance cleanliness plays in the matter of health. Many of these mothers have themselves been born and raised amid filthy surroundings, and consequently know no other life. Such mothers, when told at the medical clinic to bathe their children, look up in surprise and say "With plain water, Doctor?" When it is explained that warm water and castile soap should be used, they thoroughly believe this to be one of the therapeutic agents employed to relieve the trouble and like other medicine must be faithfully taken.

My investigations show that many of the older children among the tenement house class are not bathed at all during the winter months, and that many more only receive one or two cleansing baths during that whole season.

Emphasis should be placed on the importance of cleanliness in the home as many tenements are filthy in the extreme; babies and young children are allowed to play on the floor, filling their mouths with dirt and breathing in the germs from the dust-laden floors and rooms. In many cases the food and the milk given to the baby is exposed to the same atmosphere. Can one wonder that all germ diseases run riot under these conditions? No antiseptic takes the place of plenty of hot water, a scrubbing brush, yellow washing soap, applied with a will, to clean and make sanitary, wood work and floors. Babies should never be allowed to sit or play on bare floors, even if they are clean.

The details of scalding the nursing bottles and utensils used in preparing the food, the cleansing of the nipples and keeping them in

boracic acid water, as well as the care of the breasts in a nursing mother, should be thoroughly explained and emphasized. It is not alone necessary to teach mothers that the babies should receive the best milk that can be procured but that this milk should be kept in a cool place, an ice box in summer and a room kept at 40 to 50 degrees Fahrenheit in winter, the bottles well stoppered, and protected from dust, dirt and flies. Not only is it essential that the baby, its food and surroundings, be clean, but also the mother or nurse who cares for the baby should be scrupulously clean herself.

A filthy habit which is very generally practiced is the use of the "pacifier" for young babies. If mothers only realized what an admirable carrier of disease this innocent looking little rubber nipple is, they would not only abandon its use, but shun it as they would poison. Tuberculosis, syphilis, diphtheria, typhoid fever and many other infectious and contagious diseases may be transmitted by means of the "pacifier," and it is a frequent cause of adenoids.

Another source of danger is the house fly, which carries disease. They should be screened from the house.

Sleep.—Babies to be well nourished and normal require long hours of sleep; when one or two months old they ought to sleep from twenty to twenty-two hours out of the twenty-four. Very young babies fall asleep after nursing and awaken when it is time for the next feeding. This period of sleep is gradually shortened as the child grows older, until by the first year twelve or fifteen hours daily usually suffices. It is important that every child should remain quiet and rest for a time after being fed, to prevent indigestion and regurgitation of the food, and allow the digestive process to work properly.

Excitement or too much entertainment of an active nature is especially bad for young babies. The nervous system of an infant is in such an undeveloped state that what would be a severe strain on it, cannot be realized by the average adult, and consequently many babies are the victims of over entertainment by unthinking adults, with the result that the little ones are often kept in a state of nervous excitement or exhaustion which may seriously effect their general health.

Care of the Baby During Hot Weather.—Young babies are more affected by hot weather than adults; therefore, measures should be taken during hot days to make them comfortable. If it is not possible to keep the room cool, take them to a roof-garden, recreation pier, the park, the porch, or even the fire escape if there is no better place. Frequent excursions on the water, to the seashore and country are very valuable. Babies should be bathed frequently, and be dressed in thin, cool, loose clothing. During the hottest days the milk should be diluted with barley water or plain water so that their food will represent only half the strength they are accustomed to; besides this they should be given plenty of water to drink. Cleanliness in every sense of the word is doubly important in the summer. One thing should be emphasized to the high and low, to the rich and poor, to the young and old, that a seeming trivial illness in a baby, if it does not receive proper and immediate treatment, may quickly lead to a serious and often fatal result; thus every mother should be warned on the first symptom of diarrhœa or other illness to see a physician at once and never rely on her own judgment in the matter.

Farming Out Babies.—Large numbers of babies herded together in institutions and hospitals do badly, and a large percentage of them sicken and die. Many of these are foundlings or illegitimate children. They cannot get the individual love, care, and attention that their nature demands. During 1911, up to October 1st, forty-two per cent. of all deaths of babies under one year, in Manhattan, have occurred in institutions, the greater proportion being foundlings. It has been proven that these babies do much better when given to individual families in the country to rear during the summer at least, and still kept under the supervision of the physician attending at the institution or hospital where accurate reports of their condition and feeding can be registered.

What is now being done to enlighten the public and ameliorate this existing condition? Until recent years it was believed the high death rate among infants was in a large measure unavoidable, and, in fact, was looked upon as a dispensation of Providence, but it is now beginning to be realized that it is unfair to blame Providence for this heavy toll taken each year from among

the little ones. It has been shown that the death rate can be cut almost in half by intelligent care, faithful mothering, and healthful surroundings.

The French were the first to appreciate the baby's right to intelligent care, and who by their declining birth rate had their minds turned to safeguarding the health of their future citizens. Dr. Pierre Budin, in 1892, established classes at the Charite Hospital, in Paris, where mothers could bring their babies for inspection and advice until the babies were a year old, and longer if necessary. It was found that the babies which were under careful medical supervision for a year thrived better than those that were not under such supervision.

Shortly after the organization of the Budin "consultations," Dr. Variot, in Paris, and Dr. Defour, at Fe Camp, established "Goutte de Lait" depots, which were what we now call in our own country Infant's Milk Depots, or Babies' Milk Dispensaries. The idea of the "Goutte de Lait" was to supply a suitable milk for the babies who were forced to be artificially fed, and give instruction to the mothers in infant hygiene and infant feeding. England, Germany and Spain speedily established these Infant Milk Depots, and this movement was so generally adopted that now milk dispensaries may be found in nearly all parts of the civilized world.

Dr. Henry Koplik of New York, deserves the credit of opening one of the first milk dispensaries in this country, in 1889, at the Good Samaritan Dispensary, where thousands of mothers have received and are still receiving modified milk for their babies, 180 babies on an average being supplied daily with milk the year round, here alone.

In 1893, Nathan Straus established his first depot for dispensing Pasteurized milk. Since then the movement has spread throughout the country, so that up to date these milk dispensaries have been established in from thirty to forty cities of the size of fifty thousand or more population, with the result that the infant death rate has been cut down from twenty to fifty per cent, among the babies reached by these dispensaries. Most of these milk dispensaries, with the one exception of the municipal milk stations in Rochester, New York, established by Dr. G. W. Goler, the local health

officer, in 1897, were started by means of private philanthropy. By means of these milk dispensaries during the summer months, Dr. Goler in ten years reduced the death rate among children under five years by one-half. In New York City, \$40,000 has been appropriated for the maintenance of milk stations during the current year, and it is to be hoped we will see a marked falling off in the death rate among these little ones as a result.

It is indeed time the American people opened their eyes to the fact that the birth rate is steadily diminishing among our own countrymen, and this country is rapidly being populated with emigrants and their children from the lowest walks of life from other countries, many of them being paupers, escaped, or ex-convicts that become a burden to the country and fill our poor houses and penal institutions. It is a fact that our good stocks ordinarily have small families while the poor stocks have excessive families.

Wherever possible the physician should exert his influence in the interests of sexual and fecundal selection.

It is most gratifying to note a general public awakening throughout the country as a result of the past efforts of physicians to educate the laity in baby hygiene and feeding, and a steady reduction in infant mortality during the last three decades throughout the whole country, which has culminated in a very material reduction, especially in New York City, the past year, due no doubt in a large measure to the educational campaign that has been carried on for many years and to the seventy-nine infants' milk stations which were organized to work in unison during the past year.

The Health Department of New York City reports for the nine months ending October 1, 1911, 3,227 deaths of children under one year of age from diarrhoeal diseases, as against 4,011 deaths during the same period of 1910, or a saving of 784 lives, or a decrease of 9.9 per mille from diarrhoeal diseases alone.

If we apply the death rate of 1910 (44.3) to this year (34.3 per mille), there is really a numerical saving of 928 lives.

The great underlying principle in the reduction of infant mortality, as has been stated before, is education of the mothers, and one means of doing this and reaching the masses has been through the formation of the league

of Little Mothers, by the Department of Health of New York City, which has a membership of 22,000 little girls from the public schools. These are given special lessons by nurses and doctors on how to care for, feed and prepare the food, clothe, and bathe the baby. The girls are supplied with badges and certificates of membership. This is doing much to educate the little foster mothers of to-day, and through them their parents, while training those who will be real mothers in a few years to come. But we must realize that this reduction of infant mortality is a problem that must be dealt with the year round, and that our aim should ever be to keep babies well rather than curing them after they are sick. Until this lesson be learned and put into practice, we will not be wholly successful in our efforts.

104 West Seventy-sixth Street.

A NEW DIET FOR TYPHOID FEVER WITH NOTES.*

By W. M. GARTON, M. D., Norfolk, Va.,
Surgeon U. S. Navy.

A minimum nitrogenous diet for typhoid fever having been so remarkably successful at this hospital in the past two years and especially so during the recent, and one of the most acute, epidemics the Navy has experienced (at one time sixty-five acute cases were under treatment), has caused me to submit the following report:

Typhoid fever has been endemic at this hospital during my entire service until the past month and, as prior to that time no special or particular diet had been prescribed for all typhoid cases, I tried to formulate a diet that would, if possible, meet all conditions and stages of the disease; mainly, reduce amount of secondary toxemia (auto-infection), tympanites, avoid hemorrhage, prevent perforation and at the same time to have the patient in as good condition as regards to strength and flesh at the end of the disease as possible.

The first step was the elimination of milk—a milk free diet—having been greatly impressed by the reports of Dr. Lambert of New York City. The results were very good indeed and I decided to try and satisfy myself if this could not be improved by giving just enough nitrogen

*Read before the Section on Practice of Medicine of the Norfolk County Medical Society, at Norfolk, Va., May, 1912.

For discussion, see page 147.

and not an excess to do damage. After going into the subject most carefully, I noted the following facts:

1. The protein of our food fulfills two general functions: Its oxidation furnished energy, especially heat energy, to the body, and, moreover, a portion of it is used to reconstruct the living protoplasm which breaks down in the functional activity of the tissues. The non-protein food also furnishes heat energy and work energy, and can replace this part of the function fulfilled by the protein. With reference to the consumption of protein in the body, the non-protein foods are all protein-sparers and herein lies one great peculiarity of their nutritional value.

2. Chittenden states that increased nitrogen with protein indigestion does not add strength to the system but is eliminated in the urine and feces in increasing amounts and very little is utilized, that is, a small part of the nitrogen ingested is taken up by the body.

3. Nitrogen metabolism being passed by both feces and urine in increasing amounts, it is reasonable to conclude that the minimum amount should be given, when we consider that before being excreted it first enters into irritating and toxic nitrogenous compounds, shown in the urine by ammonia compounds, indican and other irritants.

4. Overfeeding of nitrogenous food is a cause for increased bacterial decomposition and intestinal fermentation, mal-digestion and auto-infection.

5. The absorption of toxic nitrogenous compounds causes an irritation of the vasomotor system, causing a constriction of the blood vessels of the skin, hence a diminishing of perspiration and heat radiation.

6. During fever the glycogen of the liver diminishes, and if starchy food is not given it may entirely disappear; also the fat of the body is the first to burn.

7. Mal-digestion may develop an acidosis of the system or a diminished alkalinity of the blood.

8. Shock or vasomotor dilation, a not uncommon cause of death in typhoid fever, has been attributed to the absorption of the toxins from the intestines and their action on the adrenal glands.

9. Absorptive toxins are more frequent and

more serious in protein mal-digestion than in starch mal-digestion.

Physiologic experiments have shown that the glandular secretions of the gastro-intestinal tract in typhoid fever are diminished, shown by dry mouth, coated tongue, sordes, and sometimes acidity of the salivary glands. Remedied by lemonade and orange juice and sodium chloride in food.

With these facts in view, I concluded that a *minimum nitrogenous* diet was what was indicated, and the results have justified this conclusion.

A menu was formulated consisting of principally carbohydrates and fats that would meet the requirements of a *minimum nitrogen* equilibrium and containing from 2,000 to 3,000 calories.

The following table is the complete diet given in twenty-four hours, with notes on preparation, method of feeding, etc. It is the result of over two years work that has been changed many times due to the valuable suggestions of the Medical Officers who have been in charge of the typhoid fever ward during that time.

The use of Robinson's barley and Bethlehem oats was due to the excellent results obtained in the feeding of infants, and its adoption in typhoid feeding has not been disappointing but to the contrary has given excellent results.

The interval may be increased to three hours and if necessary the amount can be reduced, but the patient should be urged to take as much as possible.

Begin diet about 6:30 A. M. Interval between feedings, two hours.

6:30 A. M. One cup hot coffee with two drachms of sugar. No cream. Two slices of zwieback or buttered toast.

8:30 A. M. One portion of Jordan's Bethlehem oats food or Robinson's patented barley, according to bowel indications, with six buttered crackers, saltines.

10:30 A. M. Six ounces soup. Change recipe occasionally.

12:30 P. M. One medium baked potato, mashed and prepared with two ounces of butter. Add large pinch of salt. Two thin slices of buttered toast, hot, and one cup hot weak tea with two drachms of sugar.

2:30 P. M. Two teaspoonfuls of pudding,

bread or tapioca, preferably the latter, and six saltine crackers.

4:30 P. M. Two ounces of rice, farina or cream of wheat, thoroughly mixed with one ounce of butter and four drachms of sugar. Change from day to day to alter diet.

6:30 P. M. Three slices of buttered toast.

8:30 P. M. Six ounces of soup.

The following are the recipes for soup allowed; the pea and bean skins should be removed.

Black Bean Soup: One pint black beans, two quarts cold water, one small onion, two stalks celery or one-fourth teaspoonful celery salt, one-half teaspoon salt, five teaspoons butter, one and one-half teaspoons flour, one lemon. Soak beans over night; in the morning drain and add cold water. Slice onion and cook five minutes with half the butter, adding to beans, with celery stalks broken in pieces. Simmer three or four hours, or until beans are soft; add more water as water boils away. Rub through a sieve, reheat to a boiling point, and add salt, well mixed. Bind with remaining butter and flour cooked together. Cut lemon in thin slices, removing seeds, put in tureen and strain soup over the lemon.

Baked Bean Soup: Three cups cold baked beans, five pints water, three slices onion, two stalks celery, one and one-half cups stewed and strained tomatoes, two tablespoons butter, two tablespoons flour, salt; put beans, water, onions and celery in saucepan; bring to boiling point and simmer thirty minutes. Rub through a sieve, add tomatoes, season to taste with salt, and bind with the butter and flour cooked together. Serve with crisp crackers.

Vegetable Soup: One-third cup carrot, one-third cup turnip, one-half cup celery, one and one-half cups potato, one-half onion, one quart water, five tablespoons butter, one-half tablespoon finely chopped parsley, salt. Wash and scrape a small carrot; cut quarters in thirds lengthwise; cut strips thus made in thin slices crosswise. Wash and pare half a turnip, and cut and slice same as carrot. Wash, pare and cut potatoes in small pieces. Wash and scrape celery and cut in quarter inch pieces. Prepare vegetables before measuring. Cut onion in thin slices. Mix vegetables (except potatoes), and cook ten minutes in four tablespoons butter, stirring constantly. Add potatoes, cover and

cook two minutes. Add water and boil one hour. Beat with spoon or fork to break vegetables. Add remaining butter and parsley. Season with salt.

Tomato Soup: One can tomatoes, one pint water, twelve peppercorns, bit of bay leaf, four cloves, two teaspoons sugar, one teaspoon salt, one-eighth teaspoon soda, two tablespoons butter, three tablespoons flour, one slice onion. Cook tomatoes, water, peppercorns, bay leaf, cloves and sugar twenty minutes; strain, and add salt and soda; bind and strain into tureen.

Tapioca Wine Soup: One third cup pearl tapioca, one cup cold water, three cups boiling water, one-half teaspoonful salt, three inch piece cinnamon, one pint claret wine, one-half cup powdered sugar. Soak tapioca in cold water two hours. Drain, add to boiling water with salt and cinnamon, boil three minutes, then cook in double boiler until tapioca is transparent. Cool, add wine and sugar. Serve very cold.

All soups to be strained through a fine sieve.

The patient should be fed with an "Ideal" feeding cup or spoon and the food should be given slowly. Do not hurry the patient. Give water between meals. Give nitrogenous nutriment as soon as the convalescence is established, beginning with liquid beef peptonoids, panopepton, buttermilk, etc.

At the height of the fever, if these foods are distasteful or if the patient cannot eat the full quantity, reduce amount and add milk sugar in considerable quantity.

Give the patient three grains of sugar of iron, t. i. d., or four drops of tincture of ferrous chloride in fresh lemonade, t. i. d.

One portion of Jordan's Bethlehem oat food or Robinson's patent prepared barley is a dessertspoonful before being prepared into a gruel. The former is prepared according to the directions on the box for confinement cases, including nutmeg and sherry wine for flavor.

If the bowels do not need regulating and a change is desired, substitute at 8:30 A. M. the following: Two heaping teaspoonfuls of cream of wheat gruel or farina and a handful of oyster crackers.

Water should be given almost *ad libitum* (internal hydrotherapy).

Orange and lemon ices can be given when ordered.

A special diet kitchen has been installed in which this typhoid fever diet is cooked, and great care is taken in its preparation and to see it is served in a way that will not be repulsive but tempting to the patient. This diet kitchen is under the supervision of a nurse especially detailed for this duty.

As typhoid fever is practically endemic at this place one ward is completely equipped for typhoid fever and one nurse with six hospital apprentices, when available, are detailed for this ward.

The Hospital Apprentices receive teaching and special instructions in the treatment of this disease from the nurse detailed in the ward under the supervision of the Medical Ward Officer.

The following instructions are now in use in this ward:

- (a) Special typhoid diet for all bed patients.
- (b) Sponge or cold pack for temperature over 103.
- (c) Cleansing bath every morning.
- (d) All excreta to be thoroughly disinfected in special apparatus installed for this purpose.
- (e) Bed linen to be thoroughly disinfected in steam chamber before being sent to laundry.
- (f) Change bed linen as often as may be necessary.
- (g) All bed patients to have back rubbed with alcohol every morning. Watch carefully for bed sores.
- (h) Hands and nails of all patients to be thoroughly cleaned every morning, after stools, before meals and baths.
- (i) Keep mouths of all patients clean and teeth free from sordes.
- (j) Watch carefully for any sudden change in temperature, pulse, blood in stools, or abdominal tenderness. If any of these occur, notify Ward Medical Officer at once, or in his absence the Officer of the Day.
- (k) All patients to have water *ad libitum*.
- (l) Keep ice caps well filled and to head after it has been closely clipped, if temperature is over 102 or marked nervous symptoms.
- (m) Fresh sputum cups every morning.
- (n) See that all dishes are boiled immediately after use.
- (o) Soap suds enema every morning.
- (p) Medicine glasses to be kept in solution

of bichloride of mercury, being careful to wash thoroughly before using.

(q) Nurses and apprentices to be careful to wash hands thoroughly and soak them in bichloride solution after handling patients and to wear special provided coats.

(r) No visitors to be allowed in the ward without special permission of the Officer of the Day. No food of any kind to be taken to the ward by visitors.

(s) Disinfect penis after urination.

(t) Disinfect buttocks thoroughly after stools.

This ward is specially screened and great care is taken to eliminate the presence of flies.

In concluding, I wish to state that 175 typhoid fever cases have been treated at this hospital in the past two years, with a record of five deaths. These cases on admission represented all types and stages of the disease and cannot be considered selected ones. As a general rule, the fever has been moderate, nervous symptoms absent, hemorrhage in less than ten cases, and perforation of the bowel in one case, flat abdomen the rule, marked loss of flesh the exception and a craving for food during convalescence rather unusual. When the patient is able to get up, his general appearance does not present the usual striking picture of emaciation, and he rapidly regains all his strength and is ready for duty as soon as three negative stools have been obtained. Relapses and secondary infections have occurred in a very few cases.

Naval Hospital.

A MORE LIBERAL DIET IN TYPHOID FEVER.*

By CHARLES R. GRANDY, M. D., Norfolk, Va.
Ex-President, Norfolk County Medical Society.

Among the most common symptoms of the last weeks of typhoid fever are emaciation, great hunger, and the finding of diacetic acid in the urine. We indeed have come to look upon them as almost as integral a part of typhoid as the fever. Now, of course, we all know that these symptoms may be caused by starvation, but it did not occur to most of us that lack of food might be their cause in the latter part of typhoid fever. Indeed, we had become so accustomed to charge everything to the pyrexia that we paid little or no attention to anything else. The pos-

*Read before the Elizabeth City County Medical Society, at Hampton, Va., Spring, 1912.

sibility of their being due to starvation was brought more forcibly to our attention when we began to appreciate the caloric needs of the body and to calculate just how much fuel we were giving our typhoid patients.

Thus on a diet of milk alone it is seldom possible to get down more than two quarts a day, which gives us 1,280 calories, while a 150 pound man needs 2,250 at the lowest to keep from drawing on his tissues for nourishment. It was often customary to substitute other articles such as beef tea and orange albumen for some of the milk feedings. While this was very valuable in keeping the patient from getting tired of the milk, it really cut down the caloric value of food instead of increasing it. There is nothing that popular superstition vests with such exaggerated food value as beef tea, for there are few articles of food of lower caloric value; indeed, the authorities now say that beef tea has about the same food value as urine. Next to beef tea the average nurse considers an orange albumen the most nutritious thing she can get down a patient, but she is vastly mistaken, for an ordinary orange albumen contains only about fifty calories while a glass of milk contains one hundred and sixty. Consequently a diet consisting of four glasses of milk, two cups of beef tea and two glasses of orange albumen is less than eight hundred calories, or even worse than the old exclusive milk diet.

Having finally appreciated that our typhoid diets were insufficient, the question immediately presented itself as to whether a fever patient could digest and assimilate food in accordance with the caloric requirements. After careful testings by many men this question can be unhesitatingly answered in the affirmative as far as the ordinary case of typhoid is concerned. Probably the most thorough work in this line has been done by Coleman in Bellevue Hospital, where the "high calory diet" has been in practical every day use for over four years, having been tried on ill patients. Coleman's final conclusion, in a paper recently published, is that "in the cases studied, the high calory diet has apparently modified the course of the disease, shortened convalescence and reduced the mortality." This diet has however been pretty severely criticised on the score that in Bellevue Hospital the calories are given more consideration than the patients and that the patient's

symptoms and digestion are frequently forgotten in the calculation of the caloric value of the food consumed. Though unable to judge personally the results obtained at Bellevue, the writer nevertheless considers this criticism specious, for Coleman again states that "the amount of food a patient requires can be determined only by his individual needs. The clinical guides to these needs are the weight of the patient and the state of his appetite. A patient losing weight should be given more food if he can digest and absorb it. A patient who is hungry should be given sufficient food to appease his appetite. In the early stages of severe cases it is always difficult to give more than three thousand calories a day; in the steep curve period and in convalescence a patient can easily take four thousand to six thousand calories a day." A calory is of course merely a measure by which we can estimate the value of the food eaten. It is of no more or no less importance than the gain or loss of weight, and can indeed be only scientifically used along with a systematic weighing of the patient. We all know that the tuberculosis sanatoria have found that they have been pushing feeding too fast and, getting their patients too fat, and it is also probable that the same thing may be found to be true of the *high caloric diet* in typhoid. But this does not mean that we have not been starving our typhoid patients, and the only way to prevent this is by making a rough estimate of the caloric value of the food eaten (not the food carried to the patient) and if possible by weighing the patients in bed.

Long before Coleman began his work, the patients in the Massachusetts General Hospital had been getting a pretty generous diet, though they are not stuffed to the same extent as the patients in Bellevue, while markedly tympanitic patients, for instance, are treated without considering the caloric value of their food, being frequently fed on butter milk, which as you know is of very low caloric value. Now in Norfolk we have been trying to use a combination of the two methods, or perhaps it would be better to say that we have been trying to follow the Massachusetts method qualitatively and the Coleman method quantitatively, though we have not pushed it as far as Coleman has. For this purpose the following diet slips have been prepared.

TYPHOID DIETS AT NORFOLK PROTESTANT HOSPITAL.

I. Fluids.

II. Milk, butter-milk, malted milk, Mellin's food, whey, junket, plain ice-cream, blanc mange, milk toast (without crust), soft crackers, cocoa, broths, rice, lactose, eggs (soft boiled or raw), finely minced chicken.

III. Steak, chop, white meat of chicken (in small quantities), toast, bread, cereals, crackers, eggs in any form, mashed potatoes, tomatoes (strained), stewed fruits, oysters.

Patients must be told to chew all food well.

We generally start the patient on milk for a day or two and then add one extra article to the diet each day so that we can watch the effect of each on the symptoms. Thus we first add a heaping tablespoonful of milk sugar to each glass of milk and the next day we can try an ounce of cream, which will bring up the calories to two thousand a day, or if we add two tablespoonfuls of milk sugar to each glass, which is seldom objectionable, we get two thousand four hundred calories a day. We next add milk toast or crackers, using the same preparation of milk, milk sugar and cream to moisten, though I never object to the patient eating these articles dry if the crust is cut from the bread. Then bread and butter are added, then eggs, either raw, soft-boiled, or in a custard made with milk-sugar, such a custard made after Coleman's receipt amounting to three hundred and sixty calories, or a raw egg can be stirred in a cup of cocoa. Sweeten everything with milk sugar for in that way we can get in a very large amount of nourishment without making it nauseatingly sweet. Thus, a saucer of ice cream can be made to give five hundred calories and an orange albumen raised from fifty to one hundred calories or more. Sandwiches of scraped beef or finely cut chicken can often be advantageously given a typhoid patient.

In the patients we have had on this diet we have had little emaciation, no hunger, shorter convalescence and an apparent avoidance of relapses, which occurred rather frequently last year in cases fed in the old way. There is no reason why a rough estimation of the caloric value of the diet should not be made for typhoid patients, treated at home, if the physician get one of the simple tables showing food values. Of course, it will be impossible to weigh these patients, but we can easily see that a patient get between fifteen and twenty calories for each pound of his normal weight and it is better for him to get the twenty calories than the fifteen.

A simple way to do this is to calculate the amount of milk, cream, and milk sugar necessary to furnish the minimum number of calories required. For a hundred pound woman or child this would be six glasses, each containing seven ounces of milk, one ounce of cream, and a tablespoonful of milk sugar, for each such glassful equals two hundred and fifty calories and six of them give our minimum of one thousand five hundred calories, or fifteen calories per pound. Then see that the nurse gets down this amount and as much more of her food as she can each day.

101 *Freemason Street.*

GYNECOLOGICAL DIAGNOSIS.*

By CHARLES R. ROBINS, M. D., Richmond, Va.
Professor of Gynecology, Medical College of Virginia, Etc.

The subject assigned for me to-night is such a broad one that I shall only endeavor to approach it on a few practical lines.

Gynecological diagnosis presents two important aspects. One positive, to determine what the condition is, and second, negative, what it is not. Patients presenting pelvic symptoms may be suffering from anything from endometritis to typhoid fever, or from ruptured ectopic pregnancy to wheels in the head. It is a great mistake to think that because the patient is a woman we must necessarily find a pelvic lesion to account for her symptoms. To practice gynecology successfully, the broadest vision is necessary, because there is hardly any general or local disease that may not find expression in the pelvic organs.

It is inadvisable, I think, to be in too much of a hurry to make a diagnosis. Some conditions, such as ectopic and a few others, may make haste imperative, but, as a rule, gynecological conditions are essentially chronic, and where the patient has been suffering for years it is not unreasonable to require that a few days be allowed for a careful revision of the case, the completion of necessary examinations and several consecutive observations.

Again, the finding of pelvic pathology does not necessarily mean that that is the cause of the patient's bad health. Take the question of backache, for instance. Because we find a retrodisplacement, it does not necessarily follow that that is the cause.

*Read before the Richmond Academy of Medicine and Surgery, April 23, 1912.

I should say that in arriving at a correct gynecological diagnosis it is necessary to approach the subject with a broadened vision, to take a sufficient time to thoroughly study the case and to prove that the gynecological pathology when found is the true cause of the symptoms presented. Nothing is more likely to lead into error than to rush a patient through a bimanual examination and operation without first obtaining a consecutive history of her case.

If I may be pardoned for dealing with the subject in such an elementary fashion, I will outline a scheme of history-taking which I have followed for some years and found quite satisfactory. The difficulty about most histories is that they are so voluminous that we never have time to write but a very few.

After taking the name, address and the date, I note on one line the following: age, color, married or not, number of years married, number of children, number of miscarriages and date of last pregnancy.

The age not only gives statistical information but enables us to compare the woman with her age and thereby approximate the amount of wear and tear with the counterbalancing amount of resistance. The social state has a distinct bearing on the subsequent history. If she is married and has had no pregnancies, there must be a reason, and indicates either depraved habits or the possibility of gross pathological lesions. The number of children indicates the functioning of the organs and the last pregnancy marks the point up to which the organs have been able to perform their function.

These points are then before us when the patient is asked to state her complaints, and after she has enumerated them, we next, under the head of history of present illness, arrange her symptoms in orderly sequence, going back to the first appearance of bad health and tracing her illness through its consecutive stages.

Under the head of previous illness, a note is made of any previous attacks of illness that were of importance or that might throw light on the present condition. This presents the patient's side of the case and it is well to give it a reasonable latitude, simply directing the narrative into an orderly channel.

We next proceed to check up the history by inquiries under the following headings:

Menstruation.—First inquire as to the date of the last menstruation and its various char-

acteristics, as interval, duration, amount of flow, pain and its relation to the period, whether before, during or after, and its location. If more than a month has elapsed, the question of pregnancy arises. If the characteristics presented are abnormal, the approximate time at which the change took place would fix the commencement of pathology. The various types of menstruation and loss of blood associated with different pathological conditions are reviewed and further inquiries fix the type more or less definitely.

Leucorrhoea.—This is of special significance. Its character will often indicate its source. The relation of its onset to pelvic symptoms will frequently determine the point of gonorrhoeal infection or whether the leucorrhoea is secondary to infected conditions in the uterus or pelvis. By bearing in mind the various pathological conditions with which leucorrhoea is associated and its character, further inquiry will make the type more definite.

Urination.—We inquire into the amount, frequency, burning or pain, tenesmus and physical characteristics. The answers to these inquiries may suggest gonorrhoeal infection, pressure from tumor or displacement, cystitis, stone in the kidney, tuberculosis of the kidney, etc. The urinary history is a most important one and gives a great deal of valuable information.

Defecation.—Inquiry into the habits, nature of stools, pain on defecation, etc., will throw light on pelvic inflammation, involvement of cancer, pain in the left inguinal region, etc. in addition to diseases of the rectum and anus.

Marital.—A history of the married state, the relation of marriage to commencement of symptoms, the number of children and miscarriages with complications and sequelae will open up another vista from which the condition of the patient may be viewed.

Exercise and the effect of standing posture are also important fields of inquiry. Conditions that improve from exercise are, as a rule, not gynecological in their nature.

General.—Under this head inquiries are made, first, in relation to the digestive organs, appetite, digestion, effect of food, pain, cramps and colic. These symptoms have especial bearing on appendicitis, gall bladder diseases, ulcer of the stomach, etc. Right sided pain, often attributed to the ovary, is more apt to be the appendix if associated with digestive disturbances. Nutrition is next inquired into and

embraces weight with loss or gain. Temperature and pulse are important.

Subjective symptoms are, of course, not conclusive, but they are very suggestive and when confirmed by the physical examination are quite positive.

The physical examination should always be complete and should invariably commence with an abdominal examination. The examination of the vulva comes next and this examination should include a careful inspection. The bladder is then catheterized, both to secure an uncontaminated specimen and to empty the bladder. This is followed by a speculum examination and then a bimanual, and lastly by a rectal examination if indicated. If examination of the urine or other symptoms indicate it, a cystoscopic examination is made and also catheterization of the ureters.

Such a history and examination may be secured in less time than it has taken to tell about it. At the same time it throws light on those conditions which may present pelvic symptoms and opens up the way to further examination, such as blood and X-Ray. As a rule, we are able to say not only what the patient has but also what she has not and to direct a proper treatment. Occasionally we may not be able to answer these inquiries fully, or the physical findings do not explain the symptoms. In such cases the seat of the trouble will often lie in errors of metabolism or disorders of other organs or be due to some constitutional malady. Under such conditions the case is referred to the internist or to some other department. I have had cases that were cured by the ophthalmologist, the internist, the nerve specialist, etc., but in all of these cases I have been able to tell the patient that an operation was not indicated and would simply do her no good or make her worse.

The object of this paper will have been accomplished if it has suggested the thought that gynecology is not a very narrow specialty but a broad science, that the pelvic organs are not the sole cause of bad health in women and that these cases are sufficiently complex in their nature to require careful study before operation is undertaken.

8 West Grace Street.

The Vital Statistics law, just become effective in Virginia is not a health measure exclusively, but is also intended to serve the people.

IODINE STERILIZATION.*

By C. C. HUBBARD, M. D., Farmer, N. C.

My attention was first called to iodine as a sterilizing agent by a driver of the Worth Manufacturing Co., of Worthville, N. C., some fifteen years ago. He often knocked off pieces of skin from his hands, and would touch the places with iodine. They would seldom get sore at all. I had done the same thing years before anything was said in the medical journals as to its value. The burning caused by its use on a small surface is very slight.

My purpose in this paper is to call attention to its use in general practice in cleansing the skin and hands before operations. My method is to paint over the surface with one-half strength tincture, after shaving, about one-half hour before operation. After the patient is under the anesthetic, I mop over the surface again with the iodine and then with grain alcohol and remove all iodine possible and begin operation. No time is lost in waiting for the last painting to strike in. At no time is any solution used for scrubbing the skin, but the iodine is well rubbed in the dry skin.

Dr. Austin, of Denton, and I have used this method in removing a tube and ovary in three cases of ventro-fixation of uterus, two cases of appendicitis, one of castration, and in many minor cases. The results have been good in every case.

In giving hypodermics, in using bacterin, in exploring with needle for hydrocele or empyema, I merely touch the skin with the wet end of the cork from an iodine bottle and go ahead.

In preparing the hands for operation I use nail brush and warm water with soap, rinse with plain cold water, wet hands and forearms with the tincture, one-half strength, care being taken that the nails get a liberal dose under and around the roots. After the patient is asleep the hands are again quickly mopped over with the one-half strength, followed by alcohol.

The only objection to its use is the effect on the hands.

The points in favor of its use are:

1. It is reliable.

*Read before the second annual meeting of the Eighth Medical Council District with the Guilford County Medical Society, at Greensboro, N. C., March 7, 1912.

2. It is easy to use.
3. It is quick in its effect.
4. It is more convenient than a bichlorid or other solution, because it does not wet the patient and does away with the use of a Kelly pad.

Proceedings of Societies, Etc.

NORFOLK COUNTY MEDICAL SOCIETY— SECTION ON PRACTICE OF MEDICINE.

Reported by FRANK H. HANCOCK, M. D.

The subject for discussion at the May, 1912, meeting of this section was:

Dietetics in the Treatment of Typhoid Fever.

Dr. C. P. Wertenbaker in opening the discussion, said that after a varied experience with diets in the past twenty years he had resolved his practice into a practically exclusive use of *orange juice*.

He was aware that there had been a tendency in the past decade to use a more liberal and a more varied diet, but he had not observed that there had been any great reduction in mortality rates, or in morbidity, where these diets were used. He had a great respect for tradition, he said, and certainly believed experience to be a valuable agent, too valuable to be discarded utterly for an assumption based upon such few and irrelevant facts as this new treatment of typhoid affords.

For fifteen years he has been using his orange juice mixtures without the assistance of the diet innovations proposed now, and he had not observed any larger percentage of hemorrhages or perforations, or any greater tendency to emaciation, than in the cases treated differently. Emaciation is a characteristic of typhoid fever, and is seen in all forms of treatment.

Dr. Herbert Old. Will *Dr. Wertenbaker* tell us what the energy value is of that food he is using, what is its caloric worth, and just what daily waste of nitrogen occurs under its regime?

Dr. Wertenbaker: No! I cannot estimate those values in figures. I just know in a general way that my patients have uniformly recovered, and apparently without more emaciation, or a longer convalescence than other cases I have seen under other diets and regimens.

Dr. W. M. Garton, Surgeon, U. S. Navy, read a paper* on

A New Diet for Typhoid Fever With Notes.

Dr. Herbert Old said the discussion of the dietetic management of continued fevers has been going on for centuries, antedating Hippocrates himself, who was so sorely concerned as to whether the ptisan (barley gruel) he gave, should be thick or thin, strained or unstrained. The great war of the factions continued down to Galen's time, some doctors withdrawing nourishment, and others giving "flesh and wine," as Petronos did.

Up to the middle of the last century, the treatment of fevers was dominated by the *phlogistic theory*, championed by Broussais, who bled, purged, and starved his fever patients. It was a part of this theory too, that animal foods of all kinds should be excluded, and it was here that the low diet reached its aphelion.

Dr. Garton's position reminds me somewhat of this early school in this, that while he gives a liberal diet, he insists upon a *non-nitrogenous diet*, leaving out milk, animal broths, etc.

Well, that was largely the position of *Sydenham too*, of the seventeenth century, who gave farinaceous foods almost entirely in his continued fevers. The doctor is borne out also in his condemnation of milk by the learned Hippocrates, who placed it between animal and vegetable foods, in its heat and excitement-producing qualities.

Robert James Graves, of Dublin, in 1835, created great excitement in the profession by resisting the *phlogistic theory* of diseases, and by announcing a *liberal diet* for his fever patients. He was regarded as a very dangerous man, but his heart was stout, as the Hebrew preacher said—quoted by *Dr. Lankford* not long ago—and he was not afraid. A final request to his friend, *Wm. Stokes*, was to the effect that there be placed upon his tomb the following epitaph: *He Fed Fevers*.

From that time until 1860 the diet has changed a very little, always being scant; even *Stokes*, influenced by *Graves*, only nominally increased the amount of food.

It was all vegetable, or farinaceous, in liquid form, consisting of gum-arabic, barley water, rice water, oatmeal, Indian meal, toast, and water, solutions of tapioca, sago, arrowroot and

*For paper, see page 139.

fruit juices. Animal broths were only employed in the convalescence.

As late as 1874 Liebermeister said, "we must fall back upon those foods into whose composition the carbohydrates enter largely," which is practically the same diet that has been used all along down the centuries. Quickly following this, however, come the use of milk and animal broths; and apparently upon this theory that "that food should be given which is most easily digested, and leaves behind the smallest amount of residue to form feces." This statement contains the evidence of the profession's regard for intestinal ulceration, and the probabilities of perforation, which has been slowly dawning since the announcement of intestinal ulceration by Louis in 1829, and the confirmation of those findings by Gerhard of Philadelphia, Alfred Stile and G. C. Shattuck of Boston, and the final separation by them of typhus from typhoid fever.

We became so obsessed with this matter of perforation, were so afraid of inducing it, we virtually returned to the restricted diet of our ancestors, though we had changed the nature of the food given. Take the feedings at the Johns Hopkins Hospital as an example: Up to a short time ago they gave feedings every two hours, as follows: Four ounces of milk at one feeding, alternated with the whites of one or two eggs at the next, except in serious cases where the amount of nourishment given is *smaller in quantity*. Now that amount of food will produce considerably less than half the energy that a normal man must derive from his food to keep from drawing on his own tissues, according to the careful computations of Coleman, Grandy and others. Just how poorly we have contributed to the sustenance of our typhoids will, I think, be understood from the contemplation of that statement. To the ravages of the typhoid toxin, and the excessive oxidation induced by the pyrexia, we have contributed a curtailment of 60 per cent. of the nourishment that a man's tissues require when he is perfectly healthy. Of course, therefore, our patients have been terribly emaciated. We were persuaded to this course, first, by our belief in a "phlogistic theory", which I have not time to go into here, and, latterly, by a phobia as to ulceration and perforation, which was quite as groundless.

Food must be given in these cases with two considerations in view; first as to their *digestibility*, and secondly as to their *energy value*. To do this we should have a more thorough knowledge of dietetics than is generally possessed by the profession of to-day, because of inadequate teaching in the past, which will be remedied in the future, according to Dr. Harvey W. Wiley, by the institution of a professorship of dietetics in medical colleges, when the practice of medicine will largely consist of the practice of dietetics.

With the restricted diet used in the Johns Hopkins Hospital, they had a high percentage of perforations notwithstanding—2.86—whereas Kinnicutt shows that in many other American hospitals where a liberal mixed diet was employed, the perforations were certainly less, as in the Massachusetts General Hospital.

In England, Marsden gives rolls and butter, milk, mashed potatoes, fish, chicken and minced meats. In Russia, Bushuyev gives a still more liberal diet; and in Germany, Friedrich Mueller, the most liberal of all, tender meats, chops, spinach, zwiebach, milk, apples and dry white bread.

That is quite an improvement indeed, but what we are concerned with this evening is the food value, its earning power, expressed in units, or calories. Now it has been quite definitely shown by Shaffer and Coleman that a healthy man, weighing 150 pounds has a daily energy requirement of something like 2,500 calories. According to Krehl, the average typhoid patient would certainly require a 25 per cent. addition to this in order to meet the febrile increase in heat production, which would put the food value he should receive at between 3,000 and 4,000 calories.

Approximately two quarts of milk a day will yield about 50 per cent. of this minimum requirement, and in addition there is a daily loss on a strict milk diet of from 5 to 12 grams of nitrogen, representing from 1.8 to 1.4 of a pound of muscle.

Coleman has prevented these losses in a series of cases he reports from Bellevue by raising the energy value of the diet. This is accomplished largely through the use of milk, cream, sugar of milk, and eggs, bread and butter. He gives about one and one-half quarts of milk, from one to two pints of cream,

from one-half to one and two-thirds pounds of milk sugar, and from three to six eggs daily. If curds appear, the milk is diminished, or it is peptonized.

A good average quart of milk will furnish about 740 calories; enough cream is given to supply a thousand calories while the rest is furnished through carbohydrates in the form of milk sugar. This latter is given in such large proportion because carbohydrates protect body protein better than any other food stuff. The eggs are given with the idea of bringing up the nitrogen content of the food, one two-ounce egg supplying 1 + gm. of nitrogen. The optimum amount required daily by a typhoid patient is supposed to be from 12 to 16 gms.

Coleman contends that this diet will produce less digestive disturbances than "home-made" meat juices. "Home-made" meat juices are specified because it is generally conceded among scientists that commercial meat preparations possess very little food value.

Coleman has this great accomplishment to his credit: he has done away with the *emaciation* that has always so frightfully characterized typhoid fever. His patients in some instances have *gained* during the attack. Hemorrhages have been less frequent and the convalescence so shortened that there was scarcely a twilight zone between the attack of fever and the return to work.

Lastly, I commend to you the paper* recently read by Dr. Chas. R. Grandy before the Elizabeth City County Medical Society, where these matters are admirably set forth.

Dr. L. T. Royster stated that he has treated in the past seven years 104 cases of typhoid. Two of these have died, one an old man seventy odd years old, who developed an hepatic abscess shortly after an attack of typhoid; and the other a boy whose meninges became affected during the course of the fever, death resulting quickly afterwards.

Several years ago, *Dr. Royster* began to feed his typhoids more liberally, following the publication of the works of Shattuck, Barrs, Bushuyev, Fitz, Mueller, Kinnicutt and Le Fevre. Certainly his patients have had a shorter convalescence, and the emaciation that has always been present has been astonishingly reduced.

He could not agree entirely with *Dr. Garton* as to the exclusion of milk, because in moderate quantities it could not well be an undesirable constituent of the typhoid diet. That it forms an excellent culture medium for germs is no longer tenable as regards its use here, because investigations have shown typhoid to be a bacillemia.

Then it would seem that in a too exceedingly farinaceous diet our nitrogen equilibrium must suffer, notwithstanding the protection that carbohydrates afford to the body protein.

It is interesting to note in this historical review, gone into by *Dr. Old*, that all the great masters have insisted upon the predominance of the carbohydrate element in their typhoid diets. Of course, they could give only an approximate reason for it, but their hands were upon the pulse of the situation most certainly.

Dr. C. J. Andrews drew specific attention to the variety of individual needs, and to the necessity of adapting our diets to meet those requirements. He recalled a case he had recently seen where any part of a liberal diet was digested easily, except eggs, which would pass through unchanged.

Section adjourned.

EIGHTH MEDICAL COUNCILOR DISTRICT WITH GUILFORD COUNTY MEDICAL SOCIETY.

(Continued from last Issue.)

Dr. C. C. Hubbard read a paper* on
Iodine Disinfection.*

DISCUSSION.

Dr. Turner: I wish to say that I was not expecting to be called upon to open any discussion. However, I am glad to hear *Dr. Hubbard's* paper. It is a very interesting one from the general practitioner's point and also from the surgeon's point. It is an old drug that we all have used, in one way or another, ever since we graduated, but a great many of us have not used it as an antiseptic, as a special antiseptic; but I would say this, that I have been accustomed to using it in connection with other antiseptics, and still I do not quite agree with the doctor as to its use alone. I do see its possibilities where it might be used in cases where

you do not have other disinfectants handy. I think it would be wiser to use your green soap and other antiseptics and follow with that as a last resort. In other words, shoot all your guns at your skin that you have, because the skin is the hardest part to sterilize.

Dr. Williams: In regard to the doctor's paper, I think it is a good point to bring out about the disinfection with iodine. I have used it in conjunction with a general preparation in over a hundred cases of laparotomies. I find the results are as good or better than anything I have ever used. Use one solution and do not use any water at all. The solution is 1 per cent. iodine in benzine. The parts are sponged with this solution, not using any soap, and thoroughly dried. Then paint with 5 per cent. iodine solution after which you can use one-half part iodine and one-half alcohol. In all the cases where I have used it in the last eighteen months it has acted very nicely, and very few of these cases have had any suppurated wound. It is a very great deal better than bichloride. It stains the skin a little, in fact, but that is immaterial. I believe that a majority of the surgeons of the country have come to the use of iodine, and I suppose for that reason it will act as well in bruises, small cuts, and be a very good antiseptic where you have injuries, etc.

Dr. Fox: You will have to give us a substitute for alcohol.

From the Audience: That is a question that will have to be decided.

Dr. Dees: Use benzine, doctor.

Dr. Bahnson: I want to say that I heartily agree with the statement of Dr. Hubbard, and I thank him very much for what he has said. I am perfectly sure that the object of iodine would be very much interfered with by first getting the parts water-logged by the ordinary process—messing with green soap and all other abominations. It is a very great step in advance that we have gotten what we might call a decent process, and I hope it will be universally adopted. I have been using it very freely, and so far, Dr. Hubbard, when alcohol fails to remove iodine stains from the skin, I have had no difficulty at all in getting rid of the stains by means of aqua ammoniac, and I suggest that you try using it.

Dr. Hubbard: I do not want to make any statement at all, but I want to presume a little.

I presume that Dr. Williams' presumption was that Dr. Fox had enough alcohol on hand to do him a life time.

(*To be Continued.*)

Analyses, Selections, Etc.

Neosalvarsan—"914."

Edgar G. Ballenger, Atlanta, in an editorial, writes as follows: Prof. Ehrlich, in his further indefatigable work, has found in preparation nine hundred and fourteen an improvement on salvarsan. It is said to be a "condensation of formaldehydesulphoxyl acid sodium with salvarsan." It looks like salvarsan and in solution smells like it, but is neutral in reaction and is readily soluble in water. No preparation is required except to dissolve it in freshly distilled water. Aside from this advantage over salvarsan, neosalvarsan, as it is called, causes much less systemic reaction after its administration; the patients stand it much better, therefore it is given in larger doses, which may be repeated more frequently. On account of these facts, it seems that neosalvarsan will prove more effective and less disagreeable than was salvarsan.

Through the courtesy of Prof. Ehrlich, I was sent a supply of neosalvarsan April the 10th, and from the 124 injections so far given, I am in position to verify the claims so far made for this preparation. In fact, from the larger doses repeated at shorter intervals it has seemed that the various syphilitic lesions have healed even more promptly than they did after salvarsan. The patients who have taken both remedies express a decided preference for neosalvarsan. The much milder reaction seems also to make it safer so that, in all probability, it will have fewer contraindications. Schreiber, of Madgeburg Germany, has administered 1,200 injections to 230 patients since last October, and is very enthusiastic in his praise of its advantages. It is not only a very effective remedy, but Schreiber has seen no neurorecurrences following its administration.

Its potency as a spirochaetocide has been amply demonstrated to us by the prompt manner in which the germs disappeared from chancres in which they were very abundant at the time of the treatment. Syphilitic manifestations,

such as the initial lesion, skin rash, mucous patches, sore throat, syphilitic rheumatism, periostitis, and many minor complaints, have quickly healed under the neosalvarsan treatment. We have given 122 of these treatments intravenously, and 2 intramuscularly to a baby.

The average doses given are about as follows: 0.9 gramme for men and 0.75 for women, repeated every two or three days until three or four doses are taken. For infants and children, the doses range from 0.05 gramme to 0.15 gramme.

In our own work we have recommended further that at least two more injections be taken at the end of a month and perhaps one more treatment thirty days later, hoping thus to remove, if possible, the likelihood of a relapse, and at the same time eliminating, we hope, the use of mercury—at least until it is clearly indicated. To give it indiscriminately would confuse the situation and make our results appear better than they really are. If a course of injections of salvarsan or neosalvarsan fail, we think, unless a further application of it cures all lesions and renders the blood-test negative, that at least a two-year course of mercury should be advised.

Judging from our experience with 678 injections of salvarsan and neosalvarsan during the past eighteen months, the patients who receive adequate doses at properly spaced intervals rarely need mercury to supplement the treatment. There is plenty of time to give it after it is found to be necessary, and then it does not mask symptoms that would otherwise demand more active treatment.—(*Journal-Record of Medicine*, May, 1912.)

Treatment of Fractures at the Elbow in Children.

W. F. Campbell, Brooklyn, says that not only the frequency of these fractures, but their gravity lays a heavy burden of responsibility upon every practitioner; for they imperil the function of the joint and the usefulness of the limb is at stake. In childhood the elbow is a center of traumatism because it is a point of diminished resistance. When the child falls the arms are naturally projected in front and interposed between the body and the ground; the shock transmitted from the ground to the shoulder is centered at the elbow, in great part upon

the lower extremity of the humerus, and the articular surface is not only broken but the fragments usually dislocated, so that consequences singularly complex are the result.

Here, there is a joint of great functional importance presenting a lesion of great complexity. The problem is not a simple one, since it involves a reduction that not only restores continuity of the fragments, but functional activity of the joint. It is obvious that in the fracture of a long bone a slight displacement of the fragments is compatible with perfect functional result; but in fracture of the elbow even slight abnormal prominence in the interior of the joint will be an obstacle to normal joint movements, and may be the cause of permanent infirmity.

Again, it must be emphasized that under the most favorable conditions of treatment perfect results cannot be guaranteed; the prognosis must always be guarded and the possibility of functional impairment emphasized. However, the best results can be obtained only when treatment is based on exact knowledge of the mechanism of the joint and of the damage caused by the traumatism.

It must be remembered that the child's elbow is not a miniature adult elbow—it is a joint formed by epiphyses in the process of development. An exact knowledge of the development of the elbow is necessary to properly interpret the radiograph and reduce the fragments. The surgeon must know the normal before he can interpret the pathological; he must be familiar with the precise situation of the centers of ossification in the epiphyses, their form and value and how they look in the picture. It is easy to mistake a conjoined cartilage for a fracture line, or a center of ossification for a detached fragment.

The facts as to fracture are gleaned principally by inspection and palpation; but the child resists a local examination, the muscles are contracted and the condition thus obscured; hence, the necessity of anesthesia, not deep, but just sufficient to relax the muscles and permit free palpation.

First, note the localization of ecchymosis; if it surrounds the elbow, suspect supracondylar fracture; if it localizes at the sides, look for fracture of the condyles. Second, palpate the parts; note the normal anatomical relations of

the uninjured elbow—(a) *the relation of the three bony points*. Place the thumb and middle fingers on the internal and external condyles, and the index finger on the tip of the olecranon. When the forearm is fully extended, the three bony points lie in the same transverse line. Any modification of the normal relations of the three bony points is due to fracture or dislocation.

(b) The head of the radius can be felt in the dimple behind the elbow. Its rotation is manifest when the forearm is pronated and supinated. In injuries about the elbow the determination of the position of the radial head is of prime importance.

(c) Compare the “carrying angle” of the two arms—the obtuse angle which the extended forearm forms with the arm; this angle is modified in certain fractures of the elbow.

(d) Note the movement of the elbow-joint, both flexion and extension. Remember there is normally no lateral motion in the extended elbow-joint.

With these standards of comparison, the injured elbow should be carefully palpated and the presence of crepitus and other abnormalities determined. These manipulations should be conducted in a gentle, delicate manner, nor should force ever be used to exaggerate the lesion and destroy the valuable periosteal connections.

Each fracture is a special problem with its individual needs and its peculiar indications; while, therefore, no precise rules can be formulated, certain precepts may be followed which will be a safe guide in all cases.

First Step.—Find out exactly just what is fractured and be satisfied with nothing but anatomical accuracy. A clinical examination under anesthesia is the first requisite, but it is never sufficient; it must be supplemented by an X-Ray examination. The radiographs should be made and interpreted by a radiographer of experience. *The X-Ray picture without proper interpretation is useless.*

Second Step.—Reduce the fracture by such maneuvers as are efficient in accurately coapting the fragments. A maneuver is selected for its efficiency and not according to precedent. Whatever the maneuvers required, care should be taken to avoid any rough manipulation which only exaggerates periosteal lesions and conse-

quent impairment of function. Firmness and gentleness are always more effective.

Third Step.—Immobilize permanently only when certain that reduction has been obtained, and that the position of the arm and the splint are adequate to maintain reduction. This will be evidenced by (a) normal confirmation of the parts: (b) a normal range of flexion and extension: (c) the confirmation of a second radiograph. The procedure should be as follows: After reduction has been obtained and the arm placed in that position which seemingly is most efficient in maintaining reduction, a temporary splint should be applied and a radiograph taken; if the picture confirms the accuracy of reduction and efficiency of immobilization, then the temporary splint should be made permanent. And no permanent immobilization should be attempted until satisfactory evidence has been obtained that the reduction, position of the arm, and splint are as perfect as the character of the injury permits.

Lastly.—In the choice of splints, preference should always be given to plaster-of-paris. No other form of splint can be moulded so accurately or held so securely—an important consideration where the child's restlessness predisposes to secondary displacement. (*American Journal of Obstetrics*, April, 1912).

Book Notices.

The Surgical Clinics of John B. Murphy, M. D., at Mercy Hospital, Chicago. Volume I: No. 1, 133 pages; No. II, 291 pages. 8 vo. illustrated. Philadelphia and London: W. B. Saunders Company, 1912. Published Bi-Monthly. Price per year: Paper, \$8.00. Cloth, \$12.00.

These “Surgical Clinics” are *verbatim* stenographic reports of lectures by Dr. John B. Murphy before his clinic for physicians only at Mercy Hospital, Chicago. They are in no sense text-book lectures, being delivered by the author in his own characteristic style, the individual force and charm of his teaching being retained, and varying with the case presenting itself. Only such editorial work has been done in publishing these volumes as has been found necessary for the purpose of eliminating needless repetition. Skiagrams, photographs and sketches are used wherever such illustrations are deemed advisable. Each case begins with its history; then

follow comments on technic of operation, remarks on diagnosis and methods of arriving at same, and points involved in the *living pathology* of the particular type of case. We are unaware of any other such publication, but we believe the departure is one that will prove of much value, treating, as is done here, every subject from a practical standpoint. These "Clinics" are published bi-monthly, and are sold only by the year.

Practical Medicine Series. Under General Editorial Charge of GUSTAVUS P. HEAD, M. D., Professor Laryngology and Rhinology, Chicago Post-Graduate Medical School, and CHARLES L. MIX, A. M., M. D., Professor Physical Diagnosis, Northwestern University Medical School. **Vol. I. General Medicine.** Edited by FRANK BILLINGS, M. S., M. D., and J. H. SALISBURY, A. M., M. D., Price \$1.50. **Vol. II. General Surgery.** Edited by JOHN B. MURPHY, A. M., M. D., LL. D. Series 1912. Chicago. The Year Book Publishers. 12 mo. Price \$2. The Series of 10 volumes, \$10.

These books are two of a series of ten published at almost monthly intervals each year. The subjects are discussed in comprehensive abstracts of articles selected from various home and foreign medical journals, with reference to covering as much of the fields of medicine and surgery as possible. They treat of the conditions met with in general practice and surgery, eliminating much of the text-book matter familiar to students. The authors are all representative in their respective branches of medicine and surgery. Illustrations are reproduced from the journals when necessary to add to the clearness of the subject.

While this series of books is designed primarily for the general practitioner, their arrangement in several volumes enables those interested in special subjects to procure only the books they desire.

Editorial.

The American Medico-Psychological Association and its Work.

Psychiatry has too long been treated as an isolated department of medicine, yet no other specialty comes in such close relationship to all the branches of the healing art. Probably less than that of any other national medical organi-

zation is the work of the American Medico-Psychological Association known to and appreciated by the general profession, yet in no other association do the subjects discussed so vitally concern the welfare of the people, for the reason that they deal for the most part with the human mind in its abnormal states. This association is the pioneer national medical association in this country, having been organized in 1844. Under its auspices is published *The American Journal of Insanity*, and its editors are among the ablest members of the Association. Most of the papers read and discussed at the annual meeting of the Association, held at Atlantic City, May 28-30, were of a high order of excellence, and immensely helpful to those who heard them. Some dealt with the practical, some with the scientific problems of insanity, but practically all had as their aim either the prevention or cure of mental disease. From a humane and a scientific viewpoint as well, the care and the treatment of the insane have, especially in recent years, made notable advance. Indeed psychiatry has achieved a high place in medical science. Under the teaching of Kraepelin and other master minds, the study of the mental processes, analysis and classification and grouping of symptoms have simplified and made more accurate the methods of diagnosis and clearer the prognosis of insanity.

From various sections of the United States and Canada there came to the meeting alienists, hospital administrators, humanitarians, physicians, publicists, with the view of broadening their own knowledge of insanity, and to exchange ideas with each other, to tell of research work and results, and to hear or make suggestions and plans regarding the betterment of the condition of the insane and the more successful management of institutions. It was evident that the average man of that group of alienists had not been so much engrossed in the administrative part of his duties, and certainly not in matters political, as to prevent him from keeping in touch with the medical and technical side. The subjects discussed embraced prevention of insanity, eugenics, methods of checking the reproduction of the unfit, etiology and pathology of the psychoses, increase of insanity and the causes, the most approved methods of treating the acute cases, the custodial care of the chronic cases, psychopathic hospitals, colony care, hos-

pital construction, employment, recreation and re-education as remedial agents, the insane criminal, social service in connection with State care, elimination of politics from the management of State institutions, State supervision, commitment and detention laws, Federal legislative restriction of the immigration of the alien insane, etc.

The president, Dr. Hubert Work, of Colorado, led off in an address of rare worth, the keynote of which was the prevention of insanity and mental degeneracy. The great advantages of early treatment, the necessity for hospital instead of jail care for the insane pending commitment and transfer to a State institution, the need and functions of psychopathic hospitals for acute and border-line cases, and the teaching of psychiatry in all medical schools, were again emphasized in several of the papers and discussions. The evidence was ample that research work was not being side-tracked, but held a place of prime importance. There were several papers along pathological lines. It was interesting to hear that an analysis of one thousand brains, by a most competent pathologist at one of the large institutions, showed that there was about one normal looking brain to every four examined; and at another institution, out of four hundred and fifty autopsies performed, 15.5 per cent. were found to show no macroscopic lesions of the brain. In recent years much has been added to our knowledge of the pathology of insanity, but there remains very much more to be attained.

Live interest was shown in the matter of dealing with insane criminals. The consensus of opinion was that in many of the States the laws regulating their discharge were inadequate and that every possible means should be used to keep such cases in custody as long as there seemed a possibility of their again becoming a menace to society. A paper was presented bearing on the inadequacy of legal definitions of mental incompetency and irresponsibility from the standpoint of the psychiatrist. It was intelligently contended that the legal conception of insanity and mental incompetency should be brought more into harmony with the present day medical knowledge and facts. The medico-legal aspect and the institutional study and care of mental defectives, the so-called "semi-insane", and the tendency to more and more

subdivide states of defectiveness was treated in a most intelligent manner in one of the papers. Likewise in another paper the legitimate uses of psychic influences in the treatment of the sick, especially chronic nervous cases, the physician's personal equation as an asset in his treatment of patients, the proper use of mental force with optimism as against quackery and Christian science, was replete with valuable suggestions and report of interesting cases.

No subject received more intelligent consideration than that of the employment of the insane—first, as a remedial agent; second, as a help to educate the patients in proper habit formation; third, as means of helping the patients to support themselves after leaving the hospital; fourth, as an economic advantage to the institution. In a few of the hospitals a nurse's occupation course is systematically taught in the training school. The exhibit of work of patients in the re-educational classes at the Maryland Hospitals and the Gardner Colony in Massachusetts was of special interest and demonstrated to what extent the insane may be taught in various forms of handiwork.

The alien insane in some of the States has become to be such a serious question that the Association adopted strong resolutions memorializing Congress to pass and enforce adequate laws dealing with the immigration of insane and mentally defective persons and their deportation to their native country. The increase in the number of the insane and the increasing burden of care and support in several of the States are due in great measure to the large percentage of foreign born. Efforts will be made to get Congress to reimburse the States for the expense for care and maintenance of the alien insane admitted in violation of Federal laws. Efforts will also be made to have the Legislatures of the various States enact laws regarding the determination of the responsibility for the care of non-residents, and also to secure the enactment, as far as practicable, of uniform commitment laws.

During recent years there has been a growing tendency to a centralized form of government of the state hospitals for the insane, and even of all humane, eleemosynary, correctional and penal institutions. In several of the states salaried boards of control have entire supervision of the institutions. New York, for instance, has a State Commission of Insanity, with an

experienced alienist at its head, that supervises all its hospitals for the insane; Illinois has a similar plan of management; and Iowa has a board of control that has general charge of all its state institutions except the educational. Last year Ohio discarded the management by separate boards, and adopted the central system which has already, it is said, effected good results. Wherever the system has been adopted it is claimed that it has brought about better methods, more economy and a higher efficiency in management. In most of the states having such a system the Board issues a Journal in which it publishes the proceedings of its meetings, including the papers and discussions by its members, the superintendents and others connected with the institutions. Such conferences stimulate to renewed activity and are educational in many ways. The distribution of the Journal throughout the state awakens interest and keeps the people informed as to what is being done at the various institutions. Such publicity inspires confidence and promotes efficiency.

It is pleasing to know that Virginia has kept pace with and in some respects been a leader in many of the advances and reforms. In dealing with the insane criminal, concerning expert testimony, in the matters of both judicial and voluntary commitment, in complete State care and in other respects, Virginia is well to the front in psychiatry.

A brief historic outline of the institutional care of the insane in the United States during the past three-quarters of a century constituted a most interesting contribution to the meeting. Dr. Henry M. Hurd, of Baltimore, the author, with Dr. William F. Drewry, of Virginia, Dr. Charles W. Pilgrim, of New York, Dr. Richard Dewey, of Illinois, Dr. G. Alder Blumer, of Rhode Island and Dr. T. J. W. Burgess, of Montreal, form the History Committee of the Association. The committee is collecting data and formulating material for an elaborate history of the care and treatment of the insane in the United States and Canada.

In the selection of President and Vice-President, (who next year becomes President), the Association showed wisdom in naming as President, Dr. James T. Searcy, of Alabama, than whom there is no more learned psychiatrist and psychologist in the country, and as Vice-Presi-

dent, Dr. Carlos MacDonald, of New York, a medico-legal expert of international reputation. There has never been a more harmonious and successful meeting of the Association nor one more fruitful to the individual who was fortunate enough to be present. W. F. D.

University of Virginia, Medical Department.

The final exercises of the Medical Department of the University were held June 9-12, as usual, in connection with the Commencement exercises of all departments of the University at Charlottesville. Always brilliant affairs, the closing days were, if possible, made more pleasant this year by the reunion of the Confederate veterans who left the University at the outbreak of the Civil War, and who were the invited guests of the University for this Commencement.

The following is a list of the graduates of the Medical Department with names of hospitals to which they were appointed. Hospital positions were open to all who would accept them.

University of Virginia Hospital—Dr. J. L. Bibb, Charlottesville; W. E. Bray, Winona, Miss.; J. S. Hume, Portsmouth, and James B. Laughlin, Huntsville, Ala.

Post-Graduate Hospital, New York—Dr. S. S. Irvine, Mt. Airy, N. C.

Bay View Asylum, Md.—Dr. H. A. Latane, Oak Grove, Va.

Waltham Hospital, Waltham, Mass.—Drs. Charles T. Porter, Sylacauga, Ala., and Wm. H. Slaughter, Tensaw, Ala.

Sheltering Arms Hospital, Hansford, W. Va.—Dr. John B. Stone, Moyers, W. Va.

Other graduates were Dr. J. O. Crider, Harrisonburg, Va., elected instructor in physiology and pharmacology, University of Virginia, Dr. J. O. Mundy, Jr., Burnley, Va., instructor in pathology, University of Virginia, and Dr. Arthur Niell, Clover, S. C.

New Councilor for Medical Society of Virginia.

At a meeting of the doctors of the Fourth Congressional District held during the sessions of the Southside Virginia Medical Association in Petersburg, June 11th, Dr. Joel Crawford, of Yale, Sussex County, was elected councilor to the Medical Society of Virginia, to fill the position recently made vacant by the death of Dr. Samuel A. Hinton, of Petersburg.

Dr. Horsley Awarded Certificate by the A. M. A. American Medical Association.

The American Medical Association, at its meeting in Atlantic City, June 4th to 7th, 1912, awarded a certificate of honor to an exhibit in the scientific department by Dr. J. Shelton Horsley, of Richmond, Va. Dr. Horsley's exhibit consisted of seven specimens and a series of photographs illustrating a new method of arterial suture, which he has devised. The specimens included a united artery and vein from transfusion of blood and experimental work on dogs showing complete division of the carotid artery and the femoral artery which had been successfully united by sutures and removed after two or more weeks. One of the specimens showed a portion of the femoral vein which had been removed and sutured in between the cut ends of the carotid artery. This specimen removed after fifteen days was transmitting blood perfectly, showed no clotting or tendency to thrombosis.

Dr. A. R. Shands Honored.

The American Orthopedic Association, at its annual meeting in Atlantic City, June 1, 1912, elected Dr. A. R. Shands, of Washington, D. C., its president for the ensuing year.

This announcement will be of interest to many of our readers, as Dr. Shands, who is a Virginian by birth, is well known in this State and has many friends in the profession. He has been a member and regular attendant at the Medical Society of Virginia for a number of years, and was elected an Honorary Member of the Society in 1904.

The Southside Virginia Medical Association

Held its thirty-seventh, stated session in Petersburg, June 11th, with a good attendance. The address of the president, Dr. J. E. Rawls, of Suffolk, was followed by a number of other papers by members and invited guests. In the evening, the Association was entertained at the Country Club by the Petersburg Medical Faculty. The September meeting will be held in Emporia, the second Tuesday in September.

Dr. Ennion G. Williams,

Who has made such a creditable record for himself and the Virginia State Health Department in the last four years, has recently received his reappointment for the office of State Health Commissioner for four years beginning July 1st.

At the 1912 meeting in Atlantic City, June 4-7, the following officers were elected for the coming year: President, Dr. John A. Witherpoon, Nashville, Tenn.; Vice-Presidents, Drs. Philander A. Harris, Patterson, N. J., John L. Heffron, Syracuse, N. Y., H. M. McClanahan, Omaha, Neb., and Henry D. Fry, Washington, D. C.; Secretary, Dr. Alex. R. Craig, Chicago; Treasurer, Dr. Wm. A. Pusey, Chicago, and Trustees, Drs. M. L. Harris, Chicago, C. A. Daugherty, South Bend, Ind., and W. T. Councilman, Boston. The 1913 meeting will be held in Minneapolis, Minn.

Dr. C. C. Haskell,

Of the Pharmacological Department of Eli Lilly & Company, was in attendance at the Atlantic City meeting of the American Medical Association.

Obituary Record.

Dr. Callom B. Jones,

One of the most prominent physicians and citizens of Ashland, Va., died at a hospital in Richmond, June 14th, after undergoing an operation. He was born May 15, 1842, and after serving through the Confederate War as a member of the Ashland Grays, Company I, Fifteenth Virginia Infantry, he studied medicine at the Medical College of Virginia, from which he graduated in 1869. He was a Mason and a member of several fraternal orders. His funeral was held from his late home with Masonic rites. He is survived by his wife and several children.

Dr. Francis Farrar Vorhees,

A gallant Confederate soldier, died at his home in Amherst, Va., June 14th, aged eighty years. He was born in Tennessee, but after graduating in medicine from Bellevue Hospital Medical College in 1870, he located in Amherst, and for many years has been one of the best known physicians and most influential citizens in that community. He became a member of the Medical Society of Virginia in 1894. Owing to failing health he retired from the practice of medicine several years ago. His wife and two children survive him.

THE Virginia Medical Semi-Monthly.

(FORMERLY VIRGINIA MEDICAL MONTHLY.)

Vol. 17, No. 7.
Whole No. 391.

RICHMOND, VA., JULY 12, 1912.

\$2.00 a Year.
10 Cents a Copy

Original Communications.

THORACOTOMY UNDER INTRATRACHEA INSUFFLATION ANÆSTHESIA.*

By H. H. KERR, M. D., C. M., Washington, D. C.
Surgeon Freedman's Hospital; Surgeon Children's Hospital; Associate Surgeon Providence Hospital.

During the past generation we have seen surgery transformed from an art to a science. With the advent of anæsthesia and asepsis rapid skill has given way to conservative operation and careful dissection. Every region of the human body has in turn been mastered. The abdomen is the daily workshop of every surgeon. In the skull the pituitary gland has been dragged from the very center of this osseous fortress into the light of scientific investigation, and the thorax, at last, is being mastered.

Thoracic surgery is yet in its infancy, and every case may be of value in building up a proper technique. The greatest obstacle in this field is the negative inter-thoracic pressure. By this means the elastic lungs are kept distended in health, but with the opening of the thorax it permits the lungs to collapse. Though this collapse may not of itself be fatal in every case, it compels at least a pneumothorax with loss of function of the corresponding lung.

To overcome this physiological barrier it is necessary that the atmospheric pressure outside the thorax be lowered, or the pressure in the lungs be increased. The methods suggested may be grouped according as they accomplish either the one or the other. Those which lower the extra-thoracic pressure are the negation pressure chambers of Sauerbruch and Willey Meyer. Increased intra-thoracic pressure is accomplished by the positive pressure cabinets of Brauer, Murphy or Janeway and Green; the positive pressure masks of Robinson, or Tiegel, or the

insufflation devices of Fell-O'Dwyer, Matas, or Meltzer and Auer.

By far the simplest of all these procedures is that of Meltzer and Auer, and it is my limited experience with this method that I wish to report to-day.

The apparatus consists of a foot bellows, a Wolff bottle, a mercury manometer, and a soft rubber catheter, so connected by rubber tubing that a current of air may be forced through ether in the Wolff bottle and through the catheter into the lungs. The manometer is so attached that the pressure, under which the air and ether current is maintained, may be read in millimeters of mercury. Dr. Elsburg, of New York, has presented an electrically operated improvement of this crude instrument, and with it has anæsthetized a large number of cases. But though not as convenient, or complete, the simpler apparatus answers every purpose.

The technique is as follows: The patient is anæsthetized in the usual way, and the pharynx sprayed with 10 per cent. cocaine solution. With the head extended over the end of the table, and the tongue pulled forward, the forefinger of the left hand holds open the glottis while the right passes into the trachea a soft rubber catheter. At first this is difficult, but with a little practice it can be accomplished without the aid of instruments. The catheter should be of a diameter about one-third that of the trachea. A catheter too large causes shallow breathing, and cyanosis under small pressure, and one too small will fail to keep the patient under. For the average adult a catheter from number 22 to 28 French will be the correct size. The catheter is passed down to within one inch of the bifurcation, which measures on the catheter about 26 c. m. from its tip. The bellows are then attached and a mixture of air and ether is pumped in a steady stream into the trachea under about 12 m. m. of mercury

*Read before the Medical Society of Northern Virginia and the District of Columbia, at Leesburg, Va., May 15, 1912.

pressure. The catheter partially obstructs the outflow of the air and ether, and therefore raises the intrathoracic pressure. When the thorax is open the lungs may be collapsed or distended at will by decreasing or increasing the pressure as read on the manometer. Normal respiration goes on as usual, becoming shallower as the pressure is raised.

In anticipation of doing a thoracotomy on the case to be reported, I had Dr. G. W. Davis, anæsthetist of Freedman's Hospital, use this method in the following cases as they presented themselves in my service at that hospital:

Case I.—L. G. Third degree burn. Transplantation of flap from calf of left leg to incision in contracting scar of right popliteal space. We had great difficulty in introducing the catheter into the trachea, but after that was accomplished the anæsthesia was tranquil and uninterrupted. Anæsthesia lasted one hour, and 60 c. c. of ether were used.

Case II.—R. H. Granulating wound of right palm; transplantation of flap from chest wall to palm. Catheter introduced with ease. Perfectly satisfactory anæsthetic, which lasted thirty minutes, and consumed 45 c. c. of ether.

Case III.—M. L. Osteomyelitis of tibia. Curettage and packing with Morhof-Moostig wax. Time 1 hour and 5 minutes. Amt. 70 c. c. Anæsthesia perfect.

Case IV.—E. S. Appendicitis. Appendectomy time 35 minutes. Amt. 35 c. c. Number 24 French catheter used. Excellent anæsthesia.

Case V.—L. G. (same as number 1). Manipulation of ankylosed joints. Time 20 minutes. Amt. 30 c. c. Satisfactory anæsthesia.

Dr. Davis also anæsthetized the following cases for other surgeons of the hospital:

Case VI.—M. J. Uterine fibromata. Hysterectomy. Time 1 hour and 15 minutes. Amt. 75 c. c. Some difficulty in introducing the catheter and from back-flow of ether into bellows.

Case VII.—S. H. Herniotomy. Time 50 minutes. Amt. 60 c. c. Excellent anæsthetic.

Case VIII.—Wm. J. Tonsillectomy. Time 10 minutes. Amt. 10 c. c. Surgeon displaced catheter while swabbing out blood from pharynx after the operation. This was unnecessary, as it is impossible for blood or pus to be aspirated, because of the outflowing current around the catheter.

The insufflation was also used to resuscitate a case of edema of the glottis following thyroidectomy, and the patient's life was undoubtedly saved by this means. With this experience Dr. Davis now felt competent to manage the anæsthetic in the thoracotomy case, and this was operated January 12, 1912. The case report follows:

T. G. Age 26. Admitted October 26, 1911, complaining of cough with foul expectoration. In May, 1907, patient was stabbed with a knife in the second left interspace in front, the blade of which was three inches long. Very profuse hæmorrhage ensued, and in three or four days was followed by pus. The pleural cavity was then drained in the seventh interspace, and the drainage tube kept in one year. The wound was allowed to heal, but in a short time drainage became necessary again, and a portion of the eighth rib was resected. This wound was kept open two years, and allowed to close. As before, when his thoracotomy wound healed he began spitting up fetid pus, sometimes streaked with blood.

On examination patient is emaciated, but physical examination is negative, except for the thorax. Respirations are somewhat accelerated, and there is constant cough, with foul stinking expectoration. The right chest is negative to examination. The left is markedly smaller than the right, and the excursions markedly limited. On percussion the lower half of the left thorax is dull, with absent breath sounds on auscultation. After exploratory aspiration on October 20, the seventh rib was resected under cocain anæsthesia. Drainage, at first profuse, gradually disappeared, and the fetid expectoration ceased altogether. When the drainage had stopped and the tube was removed, the purulent expectoration immediately recurred. Drainage was again established with cessation of expectoration, and the same experience was gone through as before three times. Then the question of a more radical drainage of a suspected lung abscess connecting with the empyæma cavity was considered.

On January 24, 1912, the patient was anæsthetized and a number 24 French catheter was introduced into the trachea, and the insufflation started. He did not take the anæsthetic satisfactorily, the respirations being shallow and his color poor. A number 22 French catheter was

then substituted for the number 24, and the anæsthesia proceeded normally.

Suspecting the abscess to be in the neighborhood of his original injury, the pectoralis major and minor muscles were divided close to their origin from the sternum and ribs, and internal to the entrance of the anterior thoracic nerves. With these muscles reflected upwards, and the arm abducted, a fine exposure of the upper chest wall was obtained. An incision was made in the third interspace, and the rib spreaders applied, but, owing to the previous limitation of motion of this side of the thorax, the ribs could not be separated wide enough to admit the hand. The anterior half of the third rib was therefore resected, and the spreader again applied. This gave a beautiful exposure. The lung, dark pinkish in color, was maintained inflated by the pressure and could be collapsed by lessening the pressure, or forced out against the incision by increasing the pressure. When the lung was allowed to collapse, the pericardium was exposed below, and the excursions of the heart within it could be easily watched. The pulse was counted at 90 to the minute, it having ranged from 100 to 116 before the insufflation was started. Numerous aspirations of the lung failed to find the suspected abscess, and the incision was carried further back into the empyæmic cavity. To our surprise this cavity was found absolutely dry, containing no pus or blood. The visceral pleura was found greatly thickened. Again we failed to find any opening from this cavity into the lung, and another thoracotomy opening was made in the most dependent point of the cavity, the left hand in the chest acting as a guide. Before closing, the thickened visceral pleura was freely incised and the pressure forced up to 30 millimeters, but without markedly forcing the lung into the empyæmic cavity. The pressure was allowed to fall to 15 millimeters, this keeping the lung above distended in close apposition to the intercostal incision. The ribs were drawn together with kangaroo tendon, and the muscles carefully sewed back in place. The skin incision was very carefully and tightly sutured and a large moist dressing applied. Pure air was then insufflated for a short time and the catheter withdrawn.

The anæsthetist's record shows the anæsthetic started at 11:55, insufflation started at 12:25, and anæsthetic stopped at 1:50. The operation

was started at 12:30 and ended at 2; 150 c. c. of ether were used by the drop method before insufflation during 30 minutes, and 210 c. c. of ether during insufflation, lasting 85 minutes. The insufflation anæsthesia used only about one-half the amount of ether necessary by the drop method. Operative recovery was prompt and satisfactory. The thoracotomy wound healed tightly in three months.

The patient's condition has improved wonderfully since operation, although no abscess was found. There has been no cough or expectoration since the operation, or since the thoracotomy wound closed for the first time in five years. The function of the arm is normal.

1742 N Street, N. W.

SOME PHASES IN THE MANAGEMENT OF PULMONARY TUBERCULOSIS.*

By W. E. JENNINGS, M. D., Danville, Va.

In taking up this subject, I am selecting the class of cases with which the general practitioner has to deal throughout the course of the disease. Unfortunately, there are a large number of cases who, because of their age or lack of means, or because of the advanced stage of the disease or various other reasons, are unable to leave their homes and place themselves in the hands of those skilled in the management of pulmonary tuberculosis.

There has been so much written already in regard to the importance of an early diagnosis that I shall not take up this subject in detail. We may expect our percentage of cures to be in direct proportion to our promptness in making a diagnosis and in instituting the proper line of treatment.

Often a thorough physical examination of those cases suffering with indigestion and nervous disorders or huskiness of the voice and various other troubles, in which the patient is not quite up to par, will reveal the real cause of the disturbance, a beginning or moderately advanced case of tuberculosis. And I may state here that we should not attempt a physical examination unless the chest is completely bared. Unless the nature of the disease is evident, we will never be sure of our finding when an examination is made over the patient's clothing. Here we often encounter difficulty, especially in young

*Read before the South Piedmont Medical Society, at South Boston, Va., April, 1912.

girls, but, usually, on explaining the importance of the procedure this is overcome.

When the clinical symptoms point to a beginning case of tuberculosis, with a thorough physical examination we should be able to establish a diagnosis before the bacilli appear in the sputum. Localized absence of the normal respiration with slight prolongation of the expiratory sound are suggestive. Where there is no moisture on easy breathing, distinct rales can often be brought out by a very slight cough immediately preceding inspiration. This is an important point too frequently overlooked.

A careful record of the temperature taken every four hours for several days is of material aid in making a diagnosis. A beginning case of tuberculosis, even where the patient is running an apparently normal afternoon temperature, will show a greater variation than we find in normal individuals. This is manifested by the temperature falling slightly below normal in the early morning with a normal or very slight elevation during the remainder of the twenty-four hours. The Detre skin test is also of some value in arriving at a diagnosis.

Provided our diagnosis is quite clear, and treatment is to be carried on at home, the question at once presents itself: What course are we to pursue in order to give the patient the best chance for recovery, and what is equally as important, how are we to insure the other members of the household against infection?

In dealing with this class of cases, it is necessary, if we expect to be successful, to be entirely frank with our patient, taking the time to explain the nature of the infection, how it is caused and how conveyed from one person to another, and how the spread of the disease is prevented. Also, why certain lines of treatment are instituted, and the benefits to be derived therefrom. For instance, we should explain to the patient why rest is beneficial, what causes a rise of temperature, and how the latter is to be avoided, etc. Also, why exercise is injurious when there is an elevation of temperature, etc. Only through the intelligent co-operation of the patient are we to hope for satisfactory results, and we cannot obtain co-operation if the patient is ignorant of the nature of the disease or the principles of treatment.

One of the first and most important factors to be considered is, where the patient shall sleep and spend the greater portion of his time dur-

ing the day. This question can usually be satisfactorily settled by arranging for sleeping on a covered porch, which preferably faces the South or East, and is protected on the North and West. The exposed sides may be fitted with heavy canvas curtains which are to be lowered during stormy weather. This porch should be adjacent to a heated room in which the patient is to bathe and dress, if treatment is being carried on during winter weather. In summer weather the porch should be screened, especially if patient resides in a malarial district, or where there are flies. Often we encounter difficulties in persuading patient to change his sleeping quarters from a close room to an open porch; but once the change is made, the benefits to be derived are apparent, and no further trouble along this line is met with.

In winter weather and very damp weather those persons who are very weak and advanced in age, or those in whom the bronchial symptoms predominate, and some of the cases where the throat is involved, do better in a well ventilated and partially heated room than entirely in the open air.

Patient should be supplied with his own thermometer, and can readily be taught to record temperature on chart provided for this purpose. This method has some disadvantages, and occasionally we find a very nervous patient who, on a slight rise of temperature, will worry a great deal, and in this way do more harm than good. When, however, we take into consideration the factors of rest and exercise, the necessity for some systematic record is apparent. All patients should be kept in bed or in a reclining chair the greater part of the time for the first week. In this way we are able to observe the general course of the disease, and routine of the treatment is established.

This gives us a general idea of the course of temperature and pulse, also to what extent the temperature and pulse are affected by rest. Patients who persistently run a temperature above 99.5 in the afternoon, or at any time during the twenty-four hours, or a pulse above a hundred, should not be allowed to exercise; and if the disease shows much tendency to spread, or if patient's general condition is poor, even when the temperature is normal, exercise should not be permitted. Occasionally we see a patient who is nervous and high-strung and accustomed to a very active life, whose temperature is not

affected by rest, but tends to reduce on a moderate amount of exercise. This, however, has to be very carefully and constantly supervised. Where there is constant elevation of temperature or a considerable rise in the afternoon, with subnormal or normal temperature in the earlier part of the day, rest in bed in the open air is the treatment *par excellence*.

After temperature has become normal and remains so for several days (not less than twenty), exercise, preferably walking, should be begun, starting with only a very short distance at first and gradually increasing. Exercise should never be taken to the point of fatigue, or to where it causes shortness of breath, or causes a rise of temperature, nor should patient ever hurry. Exercise should be taken in the morning rather than in the afternoon. The tendency in the earlier stages of the disease is too much, rather than too little, exercise.

Where the patient partially follows his usual occupation, half an hour's rest before, with half or preferably an hour's rest after, meals should be insisted upon. It has been found that patients frequently eat more and the digestion is better with less tendency to cough where this plan is carried out.

Frequently patients who have irritable stomachs and who have paroxysms of coughing are in the habit of regurgitating a portion of all of their meals shortly after eating. This usually is relieved by absolute rest in the recumbent position after meals, and is one of the advantages of the hour's rest.

The rest-hour period should be insisted upon, however, whether the patient is working or not, and at least ten out of the twenty-four hours should be spent in bed.

In considering the question of diet, we should insist on the patient taking three good meals a day of simple and nourishing food. More stress should be laid on the manner of cooking and style of serving than on any particular kind of food. Often a patient with a capricious appetite will take a comparatively hearty meal when the food is tastily prepared and nicely served, who would, on the other hand, take a very small amount if the food were poorly prepared and badly served. This is a factor of no little importance, and one that is frequently overlooked by the physician. As to milk and raw eggs, milk should be taken at meal time and a glass

between meals. Those patients who have lost a considerable amount of weight may take one or two raw eggs with the milk between meals. Where the patient is not taking milk, two raw eggs may be taken between meals. This amount should not be exceeded for any length of time, because the digestion will usually become upset and patient will be left in worse condition to combat the disease than he was when forced feeding was begun. As a rule, after the patient reaches or exceeds his normal weight, nourishment between meals is best discontinued, especially if patient has a good appetite. I may say here that very often where milk is not well borne, taken alone, it can very readily be taken with the addition of a little lime water.

A cool sponge of the neck and chest on arising is invigorating, prevents the frequent catching of cold and lessens the amount of cough.

Ordinarily in a case of tuberculosis, the fewer drugs we use the better for the patient. This, however, can easily be carried to extreme.

If the patient's bowels are sluggish and inclined to constipation, a free movement should be secured daily with suitable laxatives. Where the disease has run a very slow and protracted course and the digestive organs are not functioning properly, some digestive or a little diluted hydrochloric acid given for a short period may prove beneficial.

Tuberculin is beneficial in a selected class of cases, but should not be given by those not thoroughly familiar with its use, for, unless skilfully administered, it is capable of doing infinitely more harm than good.

Our success will depend not so much on any one line of treatment as the thoroughness with which the treatment is carried out. Every hour of the patient's time must be provided for that he may thus be relieved of the uncertainty of what to do and what not to do.

The mental attitude of the patient carries a great deal of weight in deciding the prognosis. A patient who takes kindly to the treatment and tries and believes he is going to get well about doubles his chance for recovery. On the other hand, when a patient makes up his mind there is no chance for a cure and does not co-operate with the physician, he usually succeeds in dying very promptly. A sunny disposition is a valuable asset to a tubercular subject, and cheerfulness should be encouraged at all times. The idea that practically all persons suffering with

tuberculosis are optimistic is quite erroneous.

Business cares are to be eliminated as far as possible and sympathizing friends are to be avoided.

In considering the protection of the family and those in attendance, the watch-word is constant carefulness. As we all know, a careless consumptive is a dangerous person to be associated with and one to be feared. On the other hand, a conscientious and careful consumptive is comparatively harmless when he has been properly trained.

How, then, are we to reach the state of affairs when the consumptive will cease to be a menace to those with whom he is to associate? By explaining to the patient that practically the only way the disease is spread is through the sputum, and thoroughly impressing him with this fact. He should be supplied with covered pasteboard sputum cups and no sputum allowed to escape except in this receptacle. When sufficiently filled with sputum, the cups are burned in a closed stove.

What is equally as important is to impress on the patient the fact that on coughing he sends out a fine spray from his mouth which may contain the tubercle bacillus. Therefore, when coughing, he should always shield his mouth that none of this spray may escape. For this gauze, cheese cloth or Japanese paper napkins, any of which are both satisfactory and inexpensive, should be used. These are to be burned on becoming soiled.

It is well to add some antiseptic to the excreta, as in typhoid, a solution of carbolic acid being preferable. No one should be allowed to sleep with the patient, or in the same room.

It is hardly necessary to state here that patient should use separate dishes and drinking cup, and these are to be boiled directly after using. Expectoration on newspapers and open vessels should be forbidden, because the practice is both dangerous and disgusting.

If these details are carefully and thoroughly carried out by the patient and those in attendance, there is very little danger of infection for the other members of the household.

It is also well for us to remember that heredity does not play so important a role as the direct infection from one person to another, and that so-called family predisposition is usually handed down by a careless or ignorant member of the family who is suffering with tuberculosis.

While nothing original is claimed for this paper, nor would we advise any case to stay at home when he can place himself in a suitable sanatorium, it is hoped that it may be a help to some of those whose duties are to attend such cases as have been mentioned.

Dudley Block.

ARTERIAL HYPERTENSION.*

By HENRY P. PARKER, A. B., M. D., Washington, D. C.

The subject of arterial hypertension is so closely interwoven with arteriosclerosis and chronic nephritis that it is necessary to consider some points in the etiology of these conditions. The question arises as to whether arteriosclerosis is the cause of high blood pressure or *vice versa*. Again, in regard to the high pressure of chronic nephritis, has this the same origin as in the cases where the kidney is not frankly involved, or are there various factors acting at various times?

As regards the factor in producing arteriosclerosis, Osler mentions, first, wear and tear of life, particularly the stress and strain of modern business life, but not the mental strain of the scholar.

Second, acute infections, particularly lues, typhoid fever, tuberculosis, scarlet fever, small-pox, measles, diphtheria, and influenza. The relationship to lues has been observed clinically for a long time. In recent years Thayer has shown the close relationship with typhoid fever. Experimentally, Gilbert and Lion produced the lesions of arteriosclerosis by injecting cultures of various organisms. Similar changes have been produced experimentally by the injection of diphtheria toxins.

Third, intoxications. These are of two sorts, a, exogenous—lead, alcohol (which, however, is disputed by Cabot), and tobacco. This last is also doubted by some. Mott, in Allbutt's System of Medicine, considers it a potent source of arterial degeneration when associated with alcohol or lues. Tea and coffee are also mentioned by various observers; b, endogenous toxins. This group comprises the poisons of gout, diabetes, obesity, and Bright's diseases.

Fourth, conditions keeping up high blood pressure which may antedate arteriosclerosis, according to most observers. The etiology of this condition—over-eating and drinking—causes

*Read at a meeting of the Medical and Surgical Society of the District of Columbia, May 4, 1911.

over-filling of the blood vessels, and also allows the accumulation of toxic products. This condition is spoken of as hyperpyræmia by Francis Hare. A diet rich in beer, meat, and meat extractives may cause high pressure and arteriosclerosis, according to Mott. He says, further, that such a diet may cause gout, and arteriosclerosis from this cause as well. The effect of toxins from the alimentary tract has also been investigated by D'Amato, who found that dogs fed on putrid flesh for a long time developed atheroma, and he also found that the subcutaneous injection of urate of soda produces necrosis in not only the arterial walls, but in the vena cava also; in the latter case eliminating the possible element of strain which might be supposed to act on the arterial side. It is not a far jump to the conclusion that undigested food might have a similar effect. The frequency of constipation in high pressure cases seems certainly suggestive in this connection.

Excessive meat eating is held to be important by practically all the authorities. The East Indians and Chinese are said to be less subject to arteriosclerosis than occidental people. Very severe continued muscular effort over long period will also cause high pressure and arteriosclerosis. This is well seen in stevedores, rivet drivers and porters.

The theoretical condition of hyper-epi-nephism has also been held as responsible. This condition was probably first suggested by the known pressure-raising effects of suprarenal extract and the observed production of arteriosclerosis by Josue in 1903. This process began according to most observers with necrosis and splitting of the media, and secondary proliferation of the intima. Some observers, however, hold that the changes in the intima are primary. These effects have been produced by other pressure-raising substances, such as digitalis, nicotine, barium chloride, squills, hydrastine, ergot, etc.

Now the point has been raised as to how adrenalin acts. Is it by raising pressure, or is it due to toxic action, or may it be a combination of the two? Loeb and Gittens tried by injecting nitrite of amyl with adrenalin to counteract the pressure-raising effect of this compound. By this method they still succeeded in producing arteriosclerosis, which they thought was toxic. This was denied by Dixon, of Cambridge. He said that they still were dealing

with a condition of increased pressure, the amyl nitrite not entirely counteracting the pressure-raising effect of the adrenalin.

Ziegler, Erb, and Lissauer, from their experiments, state that adrenalin acts by causing a spasm of the vasa vasorum with local anæmia and necrosis. This is seemingly disproved by Fleisher and Loeb, who contrived by certain experiments to keep the whole aorta ischæmic, but did not produce sclerosis thereby.

Harvey, by compression of the aorta, was able to raise the blood pressure, and produced arteriosclerosis, which was due to strain purely. He held that adrenalin acted by raising pressure alone. That high pressure alone may cause this effect he clearly established, but this does not throw out of court an additional toxic action. From the clinical side, Rogers and Gouget and others have reported hypertrophy of the adrenals in persons who had shown high pressure during life. On the other hand, Mott states that Halliburton and himself, by careful examination of the adrenals in seventy consecutive cases, could establish no connection. The matter of hyper-epi-nephism may then be considered, as Osler says, hypothetical.

So much then for the production of arteriosclerosis. We will now attempt to consider the causes of high blood pressure, and will first enumerate the conditions under which it arises. These are, according to Hirschfelder, first, nephritis; second, some cases of arteriosclerosis; third, lead poisoning; fourth, heart hypertrophy, as in athlete's or smoker's heart; fifth, aortic insufficiency; sixth, conditions with increased intra-cranial pressure due to medullary anæmia (Cushing); seventh, vascular crisis of Pal; eighth, some cases of Stokes-Adams's disease between attacks; ninth, some cases of Graves's disease with heart hypertrophy; tenth, polycythæmia; eleventh, cyanosis, causing vaso-constriction; twelfth, attack of epilepsy; thirteenth, the end of pregnancy. Lastly, there is a clinical group not included by Hirschfelder, of so-called cases of essential hypertension, the pre-sclerosis of Huchard. The relation of this group to the kidneys and arteries is a question of importance. It is with this group of cases and the arteriosclerotic group that we are particularly interested, and we will return to this later.

To take up the various causes, first of all, in chronic interstitial nephritis and in certain acute cases the high-tension pulse has been observed

for years, and there have been numerous theories as to its causation. Bright himself said that an altered composition of the blood might stimulate the heart abnormally, or increase the resistance in the capillaries. The theories from Traube to Cohnheim held to the mechanical view, referring heart hypertrophy to narrowing of the vascular stream bed in the kidneys, requiring, therefore, an increased pressure. Janeway says that this theory is not tenable, as ligation of the aorta just above the renal vessels does not raise pressure.

Sir George Johnson claimed that in kidney lesions the accumulation of waste product caused spasms of the arterioles and secondary hypertrophy of the muscular coats, thereby causing increased resistance and increased pressure.

Gull and Sutton held that the kidney lesions were simply a process in arterio-capillary fibrosis, that is, diffuse arteriosclerosis. They could not, of course, divide the manifestations into an arteriosclerotic or nephritic group, as they considered the two conditions the same.

Mott seems to think that the two processes are one, the nephritis being a part of the general sclerotic condition. He thinks that both Johnson and Gull and Sutton may be right, that retained toxins may cause arterial spasm in the first place, and that hypertrophy of the muscular coats may then supervene. Mott lays stress on the involvement of the glomeruli. He, of course, notes that arteriosclerosis of the larger vessels may not be associated with high pressure.

Dickson speaks also of chronic nephritis and diffuse arteriosclerosis as one, but thinks the origin is in the kidneys, and that the peripheral resistance is mainly in the capillaries. Broadbent, too, held this opinion.

Hodge, *Medical Chronicle*, 1907, says that Campbell has shown by his anatomical studies the impossibility of the capillary resistance forming anything but a minute portion of the total resistance, owing to the shortness of the capillary tract and its wide lumen. He says, further, that high pressure would distend the proximal end and the capillary would be funnel-shaped, which is not the case.

O. Israel showed that the accumulation of urea in the blood of guinea pigs might cause heart hypertrophy, which he thought due to direct stimulation. This is largely Bright's original view. These experimental animals,

however, did not show increase of pressure. This was one of the arguments used by Janeway, in 1904, in his book in supposing that still another factor, namely, lack of splanchnic regulation, must be considered, not only in this, but in the arteriosclerotic and so-called essential group. In 1907, Janeway says that he believes a thickening of the intima and muscularis of the splanchnic arteries plays a large part in hypertension. He does not know whether it is primary or secondary. He says, further, that a purely anatomical increase is extremely improbable; vaso-motor tone must be an important factor.

A. Senator, in 1902, also held to the theory of retained toxins which irritated the vessels and heart, causing hypertrophy, but the previously mentioned work of Israel seems to show that a hypertrophied heart does not raise blood pressure in a normal circulation. Janeway says, further, all these theories, such as those of Bright, Israel or Senator, attributing high pressure to retained products, fall to the ground when we consider that the tension is highest where the retention is least. After considering the theories *pro* and *con*, Janeway concludes that the factors of increased resistance in the periphery plus a loss in the regulating power of the visceral circulation act together. He did not know, he said, whether the increased resistance and loss of splanchnic regulation were one and the same; that is, were due to narrowing of the splanchnic area by vaso-motor spasm, or whether part of the increased resistance was outside the splanchnic circulation, and was another problem. He said that an increased volume of blood and increased viscosity were problems to be thought of, but in 1907 he states that observations on viscosity have been negative.

Hodge thinks, however, that the fact of viscosity is a powerful one in causing the high tension of chronic parenchymatous nephritis. Since the publication of Janeway's book in 1904, Loeb showed in a clinical observation that hypertension is proportional to the involvement of the glomeruli. This is in line with Mahomed's observation of raised blood pressure in acute scarlatinal nephritis, which is of the glomerular type. Loeb thinks that in these cases there is a reflex vaso-constriction of the splanchnic area. This reflex is due to increased capillary resist-

ance in the glomeruli and the increased pressure is necessary to continue an efficient circulation through the diseased glomeruli, just as high pressure is necessary to continue the circulation in the brain in conditions of unusual intra-cranial tension. So much for nephritis as a factor in high blood pressure.

The next question is to determine the causative relation of arteriosclerosis. It has been known for a long time that arteriosclerosis is not necessarily associated with high blood pressure. This statement is found in the writings of all the authorities, such as Allbutt, Janeway, Osler, and Oliver, and is now a well-recognized clinical fact. Mott said that many authorities consider that the pressure would remain normal in the great majority of cases were not renal disease so common an association. However, I think that the best opinion is at present against this view. Janeway said, regarding high pressure, in addition it constitutes during life the chief feature of a clinical group which present the same cardio-vascular lesions as chronic Bright's disease, but no renal involvement. He says that thirteen per cent. of one hundred and thirty high-pressure cases in his father's practice belonged to this group. These cases are spoken of by the French as *hypertension arterielle*; Janeway says it would be perhaps better to call them hypertension of unknown cause, or hypertension with nephritis. As to the causation of this raised pressure, Janeway refers to the experiments of Von Bezold, in 1863, showing that ligature of the abdominal aorta raised blood pressure only when above the origin of the coeliac axis. He further cites the work of Hasenfeld in 1897 and Hirsch in 1900. These investigators found cardiac hypertrophy only when the aorta above the diaphragm or the splanchnic vessels were sclerotic. He states in his book that an abnormally high blood pressure cannot exist permanently unless there is some damage to the regulating power of the visceral circulation. Also, when high tension has started, hypertrophy of the heart is necessary to maintain it.

Oliver holds the same view, that when arterial pressure is raised persistently, the terminal division of the arterial system and the splanchnics particularly are involved. He thinks there is first a period of spasm (Huchard pre-sclerosis), then a stage of degeneration which is permanent. He says retained chemical products

probably constitute the first cause. The products may be the outcome of disturbed kidney metabolism or otherwise. Marchand, in 1904, however, showed cases where cardiac hypertrophy was lacking, though there was sclerosis of the splanchnics at post-mortem.

Allbutt, too, states that he has found a number of cases with splanchnic arterial sclerosis, but without high tension during life. Janeway attempted to explain these cases of Marchand by supposing that the coronary circulation was interfered with and the nutrition of the heart was not good enough to allow hypertrophy. Janeway concludes that rise of pressure must be a physiologic necessity for maintenance of an adequate circulation. The observations of Krehl are of importance, too, in this connection. He observed in 1905 that there was a rise of blood pressure in certain cases of cerebral arterial sclerosis. He advanced the theory that this sclerosis caused an anæmia of the medulla, just as Cushing showed a medullary anæmia in cases of increased intra cranial pressure, and that this anæmia was responsible for the rise of general pressure, that being necessary to continue an efficient cerebral circulation.

As to the occurrence of high pressure without evident kidney or arterial disease, these are the cases described by Huchard as pre-sclerosis. Allbutt has in mind the same group of cases under the caption of senile plethora, and Von Basch used the title latent angio-sclerosis. Von Basch held that these persons had a visceral arteriosclerosis, even though no arteriosclerosis could be demonstrated.

Janeway in his book thought this most probable, but now thinks that spasm too is a factor. Huchard held that there was a prodromal curable stage of high pressure due to toxæmias of various sort which caused spasm of the arterio-capillary system, but not organic changes. Huchard stated the symptoms of this pre-sclerosis as headache, drowsiness, morning fatigue and inaptitude for work, coldness of the extremities, and migrainous or neuralgic attacks. These symptoms are the same that Haig attributes to uric acid. Mott says it is probable that many toxins arising from defective metabolism, such as leucomaines and ptomaines, might cause the same symptoms. Allbutt mentions cerebral depression, insomnia, despondency and nervous symptoms in his cases. Allbutt watched his cases over a long period of time, and

saw them subsequently develop arteriosclerosis. This is in accordance with the views previously given that we might start with spasm and end with organic changes, which would make the pressure effect permanent.

In a previously mentioned article by Hodge, the whole question of pressure is well considered. In speaking first of causes of transient high blood pressure, he said that high pressure occurs in derangements of the alimentary tract, such as indigestion or constipation. These cases must be due to spasm, otherwise they would not be transient. Also the great fall of blood pressure by vaso-dilators and deobstruent treatment could be explained on no other basis. Of course, the factor of spasm might operate in connection with organic changes also. These clinical observations are in line with the previously mentioned experiments of D'Amato in feeding dogs putrid meat. Hodge says further that persistent high pressure is in time associated with definite organic lesion. It is a question of increased peripheral existence, whether primary or secondary. Hodge concludes as follows:

1. Hyperpiesis is due to increased peripheral resistance.

2. The possible causes of increased peripheral resistance are—a, arterial spasm; b, changes in the vessel wall; c, increased viscosity of the blood.

3. Clinically, we have temporary hyperpiesis due to spasm. It serves no useful purpose, and is in no way compensatory.

4. With persistent hyperpiesis definite organic lesions of either the arteries or kidneys are present.

5. In cases of arterio-renal sclerosis a limited reduction of pressure only is obtained by anti-spasmodic treatment. Therefore, there is some other cause besides spasm of the arterioles. He thinks the constant arteriosclerosis is the sought-for cause. He says, finally, in cases of persistent hyperpiesis we are not able to remove the causes of increased resistance. We must, therefore, have a compensatory increase of blood pressure.

As regards the symptomatology of hypertension, it is, of course, closely related to that of chronic arteriosclerosis and kidney diseases. First of all, the nervous symptoms. The most important symptom is headache. This symptom in chronic nephritis or arteriosclerosis is usually due to hypertension. Second, vertigo.

Third, transient paralysis may be due to angio-spasm. We may have cerebral hemorrhage. Fourthly, convulsions. Fifth, general nervousness. This symptom is, I think, not sufficiently appreciated. Many patients are put down as neurasthenics when the condition is really secondary to organic changes.

Cardiac.—The left ventricle will hypertrophy to meet the extra resistance. In time, however, the hypertrophied heart begins to labor and dilate. We may have at first dyspnea after exertion or nocturnal. We may have palpitation of the heart with asystole. Precordial pain is a frequent and annoying symptom. All these symptoms may occur with a powerful heart action and high tension pulse with a ringing aortic second sound. With increase of dilatation we may get all the usual symptoms of cardiac break-down, cough, orthopnea, hemoptysis, insomnia, dropsy, etc. Physical examination shows a wavy apex beat; auscultation frequently reveals gallop rhythm. The pulse in these cases may be deceptive. It is not always weak.

Angina pectoris may be associated with high blood pressure.

Kidney.—Kidney symptoms may be prominent. High pressure may be only another manifestation of the kidney disease, the urine being that of a chronic interstitial nephritis. In other cases there may be no symptoms referable to the kidney. The urine may show a persistently high specific gravity with only a trace of albumin and a few hyaline or granular casts.

Abdominal.—In some cases high tension is associated with certain gastric and intestinal symptoms attributed to spasm. This association is probably with arteriosclerotic splanchnic vessel in which spasm supervenes. As might be supposed, other arteriosclerotic manifestations, such as intermittent claudication, muscular cramp, etc., may be associated with high pressure. Epistaxis is a symptom also observed and of importance.

(Treatment, with case reports, will be given in next issue.)

The Governor of Porto Rico has requested the United States Public Health and Marine Hospital Service to co-operate with the local sanitary authorities for the eradication of the plague in San Juan. Passed Assistant Surgeon Creel, an experienced officer in this work, has been placed in immediate charge.

PREVENTION OF TYPHOID FEVER IN THE MILITARY SERVICE.*

By FREDERICK P. REYNOLDS, M. D., Fortress Monroe, Va.

Major, Medical Corps, U. S. Army.

At the beginning of the Spanish-American war the opinions of military surgeons regarding the causation and transmission of typhoid fever were those of the medical profession at large. The belief was general at that time that the essential elements in the prevention of the disease were pure water, pure food, and a safe disposal of wastes, and that defects in the provision of these essentials were the only important factors in the spread of the disease. The experiences of 1898 caused us to revise our previous theories, and since that time the character of military methods directed toward the control of typhoid has been radically changed.

The conclusions of the board appointed to investigate typhoid fever in the volunteer armies of 1898 are so well known to medical men that I will not repeat them. Our present conception of the spread of the disease among troops and our methods for its control are based upon these conclusions. Military experience since 1898 has fully confirmed the opinions of the board, and has taught us to regard typhoid fever in the military service as a contagious disease, spread chiefly through contact. An outbreak is nearly always in the form of a company epidemic or a series of them.

To prevent the spread of the disease we believe the early detection of cases to be of the most importance, especially of the ambulant and mild cases which ordinarily escape observation. Next in importance is the detection of carriers and of bacillus excretors. All cases of undetermined fever, suspects, and contacts are isolated, and specimens of blood, stools, and urine are taken and cultures made. Patients are isolated, and the disinfection of clothing, personal equipment and sanitary fixtures is thorough. No convalescent typhoid patient is released from hospital until after three negative bacteriological examinations of the stools and urine have been made, at six day intervals.

Before describing the executive measures to be taken for the prevention of typhoid fever among troops in campaign, a brief description

of our field organization might be given. The objects of medical administration in the field are, first, the preservation of the strength of the army by sanitary measures and by the retention of effectives at the front and the removal of non-effectives to the rear without obstructing military operations; and, second, the prompt succor and removal of the wounded.

The Chief Surgeon with troops in the field is charged with the general conduct and supervision of the medical department in the performance of its duties. Acting immediately under his direction is the sanitary inspector, who is especially charged with the supervision of the sanitation of the camp. The senior surgeon of each regiment supervises the sanitary conditions in his regiment. Ordinarily he has three assistants, and a sanitary squad composed of members of the Hospital Corps who are trained to operate and care for the sanitary apparatus, such as filters, crematories and incinerators, and also in the methods of disinfection. With the sanitary squad are assigned laborers and scavengers as needed. There is also provided for the entire camp a larger sanitary squad working under a medical officer who is called the "sanitary police officer." This detachment has general supervision over the areas between camps and of the larger crematories or incinerators. Working with it is a detachment of civilians composed of carpenters, plumbers, drivers and scavengers.

Certain conditions of camp life make the sanitation of troops in the field a matter of much greater difficulty than that of a civilian community. First of these may be mentioned the great density of population which results when men are aggregated together in military commands. The direct result is a greatly increased opportunity for personal contact. Then there is usually a total lack of permanent sanitary fixtures, and often much difficulty exists in providing adequate facilities of any sort. Camps cannot always be chosen solely for sanitary reasons and military necessities frequently are paramount. Nearly always the great problem is to provide for the safe disposal of wastes. The arrangements for personal cleanliness are usually of a primitive nature.

The chief problems of camp sanitary administration relate to the provision and protection of the water supply, the milk and other

*Read before the Seaboard Medical Association of Virginia and North Carolina, at Newport News, Va., December 7, 1911.

fresh food supplies; the cleanliness of kitchens and their surroundings and of the cooks and their assistants; the disposal of excrementitious and other wastes; the prevention of flies and mosquitoes, and of soil pollution; the supervision of the personal hygiene and habits of the men, of eating utensils, and the instruction in the care of the person in the field.

When troops become infected with typhoid fever, we consider certain measures essential for the prevention of an epidemic. Briefly, they consist in moving the camp to a new site which has all possible sanitary advantages; the immediate separation of the companies already infected from the others, with the disinfection of the tents and personal property of the patients and their tentmates; the isolation of those who have been closely associated with the sick; the examination of all men of the regiment twice daily for ten days, and the taking of temperatures of those showing high pulse rate, or other suspicious symptoms. Company commanders are required to send to the medical officers for examination all cases of indisposition among the men, of whatever nature. The strictest sanitary police of camp areas, of kitchens and of eating places is maintained, with constant supervision of the cleaning of the men's eating utensils. Immediate and complete destruction of kitchen wastes by incineration is required. Besides keeping careful watch over the cooks and their assistants, we look especially for carriers and for incipient cases among these men. Unremitting supervision of the water supply and of cups and containers is maintained. An attendant is kept constantly on duty in each sink to see that it is not improperly used, that seats are frequently scrubbed, and that the facilities for washing the hands are adequate.

Lastly, I may mention that the disease is frequently introduced through hucksters and their wares, and by ice cream and soft drink booths outside the camp, which are not under the control of the military commander.

The experience of the Army with typhoid vaccination is so well known that I will not take your time in reciting the details. Up to the present moment about 70,000 officers and men have been given the prophylactic without untoward results in any case. The resulting benefits have been such that we feel confident that

our troops can avoid typhoid fever in any locality and under the most unsanitary conditions. As you know, the prophylactic is now compulsory for all officers and enlisted men in the Army and for all recruits and men re-enlisting. Compulsory vaccination against typhoid has, I believe, never been attempted in troops in the field until the mobilization in Texas of last year. The outcome of this interesting experiment was that no cases occurred among the 20,000 soldiers on duty in camp for a period of about five months, from March until July; no cases have occurred in any of these troops since that time. It has been suggested that perhaps as good a record might have resulted from the excellent sanitation maintained in these camps, in the absence of the use of the prophylactic. The camp sanitation was indeed excellent—about the best that we have yet been able to attain—but, it should be remembered that never before have we succeeded in keeping typhoid fever out of encampments of such a long period. That typhoid existed in the vicinity of these camps is shown by the reports of the nearby cities. At San Antonio where the larger camp was maintained (of about 12,000 or 15,000 troops) 49 cases and 19 deaths from typhoid fever were reported to the Health Department for the four months ending June 30, 1911. In Galveston 192 cases were reported to the City Health Department during the period while the troops were in camp near that city.

Many of our military epidemics in the past have been caused by infection picked up on marches. In this connection, it might be interesting to refer to two recent marches made by organizations of our regular troops. One march was that of a company of engineers, out ten days from Gettysburg to Washington. In this company of about 100 men, 24 had not received the prophylactic. Among these 24 men, 6 cases of typhoid fever occurred, and none among the other men. A regiment of cavalry marched about three hundred miles through rural Georgia and Tennessee, and were out twenty-one days. As every member of the command had received the prophylactic, no care was taken by the officers to inspect or to forbid the use of any drinking water, and no provision was made for filtering or sterilizing it. No cases occurred in this command during the march, nor have any occurred in it since.

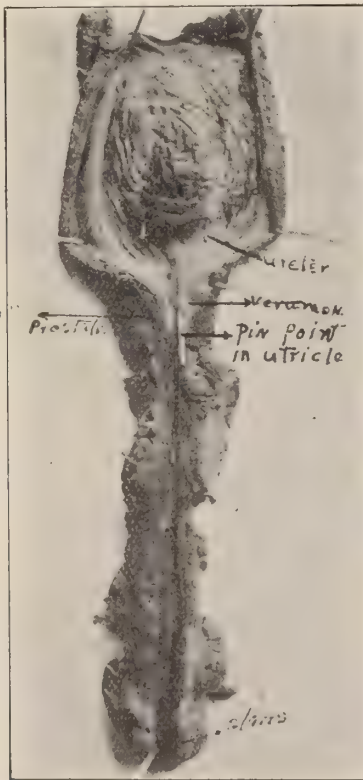
THE TREATMENT OF THE VERUMONTANUM AND PROSTATIC UTRICLE.*

By W. F. COLE, M. D., Greensboro, N. C.

There is much literature dealing with the treatment of pathological conditions of the prostate. The treatment usually outlined is massage, electricity, instillation, dilatation, etc. A great many of the cases respond to treatment nicely, yet there are many in which the desired results are not obtained.

Geraghty and Wassildo have recently called our attention to the important part that diseases of the verumontanum and utricle play in producing the severe and often distressing symptoms usually classed as prostatic neuroses. Consequently, we are able now to understand why many of our supposed cases of prostatic neuroses failed to respond to the treatment.

It will be of interest here to give some of the anatomy of the verumontanum and utricle. This specimen that I pass around is the dissec-



tion of the prostatic urethra a rounded smooth elevation known as the verumontanum. This elevation seems to be an enlargement situated in a fold or ridge, which appears as continuation of the trigonum, and terminating in the membranous urethra in several folds or branches. The surface of the verumontanum is usually smooth, but there may be irregularities of the surface which are not pathological. At its summit and slightly anterior one can see a slit-like opening of the utricle, into which I have passed the point of a pin (see picture). The utricle is a blind pouch about one-half to one cm. in depth, with a capacity of five to thirty minims, and passes downward and backwards into the prostate toward the neck of the bladder. It is the remains of the fusion of the Müllerian ducts, and is supposed to be the analogue of the vagina or uterus. Laterally and at a little lower level are the openings of the ejaculatory ducts. One or both of these ducts may open into the utricle. The mucous membrane covering the verumontanum is a distinctly paler color than the adjacent mucous membrane.

We are all doubtless familiar with a class of cases which usually go the rounds. They come complaining of numerous pains, etc., that we associate with pathological conditions of the prostate, yet the usual prostatic treatment fails to relieve them.

Now it is in many of these cases that we are able to give much relief, although there are some of a highly nervous or neurotic character in which the results are not so striking.

Diseases of the verumontanum and utricle may be associated with gonorrhœa, masturbation, frequent unsatisfied sexual excitement, sexual excess, or any condition where there is frequent congestion of this area.

Wassildo was the first to call attention to the symptoms associated with pathological conditions of the verumontanum in which no prostatitis could be demonstrated. Among the more important symptoms may be mentioned painful and precocious ejaculation. One case of especial interest of this nature was under my observation for several weeks. Patient denies history of gonorrhœal infection. Gives history of painful and precocious ejaculation over a period of one year. During the last three months coitus was so painful that he had to abstain. On examination the prostate felt normal. There were a few

tion of the bladder and urethra intact of a seven-month foetus. One can see situated on the posterior floor and at about the middle por-

*Read before the Guilford County Medical Society, at Greensboro, N. C., March 4, 1912.

broken down pus cells in the prostatic secretions. Urethroscopic examination revealed a large and œdematous verumontanum. No free pus in the utricle. Applications to verumontanum and injection of the utricle relieved his condition very rapidly. There may be distressing neuralgic pains in the perineum, groin, glans penis, testicle, supra-pubic and sciatic pains, backache, morbid sexual powers, hæmaturia, neurasthenia and depression.

A case of very great interest came in complaining of practically all the above symptoms mentioned. History dates back fifteen years to an attack of gonorrhœa. Since this time he has had six other attacks of gonorrhœa, and three attacks of gonorrhœal rheumatism. Twelve years ago he had an attack of gonorrhœal cystitis. Ten years ago he began passing bloody urine at intervals. Patient says that the above condition has since continued, only becoming more exaggerated. During the last six months he has suffered almost continually with annoying pains in rectum, glans penis, and perineum, and frequency of urination, with much pain and discomfort following urination. This patient was practically incapacitated for work. When first seen in March, 1911, he was suffering such severe supra-pubic pain that it necessitated morphine to relieve him.

On examination, patient is a poorly nourished man. Mucous membranes pale. Heart negative. A healed lesion in right apex. Prostate negative. The verumontanum is large and œdematous. Free pus in the utricle. The mucous membrane surrounding the verumontanum and extending high up into the urethra is very much inflamed and bleeds freely. Applications to the verumontanum and injections into the utricle relieved his pains and uncomfortable feelings very quickly, but microscopical blood remained in the urine for several months afterwards. Subsequently, the ureters were catheterized and the urine from the separate kidneys was free from pus cells, blood and albumin. The bladder was also negative. The conclusions were that the blood was coming from the inflamed urethra above the verumontanum. Several applications high up into the urethra seem to have helped this condition a great deal.

Dribbling of urine following urination is another annoying condition met with, which is

due, I think, to the relaxed condition of the prostatic urethra. The verumontanum may be swollen to such an extent that it will interfere with the outflow of urine. This condition was recently met with in a young fellow who had been passing a sound on himself for two years, having been informed by his physician that he had a stricture, and furnished with a sound.

Treatment.—In the mild cases Wassildo paints the verumontanum with the tincture of iodine. In the more aggravated cases he begins with a five per cent. silver nitrate solution, increasing to ten or twenty per cent. solution, and then the pure caustic stick.

Young curettes the verumontanum, following with the caustic stick.

Geraghty, in treating the utricle, begins by injecting into the utricle a one per cent. silver nitrate solution, and increases to a three per cent. solution. The injection should be slow, for forcible distension of the utricle is quite painful; also, if too strong a solution is used at first, it will produce severe pain.

Conclusion.—There are doubtless cases of this nature that are mistaken for prostatic neuroses. Many of the recurrent attacks of gonorrhœa are not new infections but are the results of an old infection of the verumontanum or utricle. The utricle may contain a mixed infection and in this case it offers an excellent field for testing the efficiency of the combined gonorrhœal vaccines as the utricle is easily accessible to inspection. If a patient with an infection of the verumontanum and utricle leads a temperate life, the swelling and inflammation may subside to a great extent. All traces of urethral discharge may be absent, and as far as the patient is concerned he thinks himself well, but if he dissipates sexually to any great extent, it will cause an acute exacerbation of the old infection. In this case, one would find the verumontanum swollen and evidences of acute inflammation in the surrounding mucous membrane; also, there may be a return of the urethral discharge.

I believe that this class of cases is responsible for the infection of many innocent women, and, if they are recognized and given the proper treatment, it will doubtless influence the number of gynecological operations.

Benbow Arcade.

THE IMPORTANCE OF A THOROUGH EXAMINATION, AND AN EARLY DIAGNOSIS IN DISEASES OF THE ANUS AND RECTUM.*

By JAMES A. McVEIGH, M. D., Detroit, Mich.

The necessity of a thorough examination in all classes of disease is generally recognized by the members of the medical profession. It may be contended that, as this subject is one of general significance, it should be treated as such. However, as this paper is intended to be of a rectal nature, the subject will be treated solely from a proctologic standpoint.

Certain it is that nowhere within the realm of the practice of medicine or surgery is a thorough examination of greater importance or more imperative than in diseases occurring within or around the anus and rectum, and, important as this is, it is unfortunately too often a fact that a physician, either through carelessness or indifference, neglects his duty in this regard. Further, it occurs too frequently that a patient consulting a physician for ailments of this nature is permitted to make his own diagnosis.

It not infrequently happens that a patient who consults a doctor, with some condition in this region which is causing him trouble of greater or less amount, advances the information that he has been suffering from the ailment for some time, during which he has been treated by "Doctor So and So." Inquiry reveals the too frequent fact that on consulting "Doctor So and So" he informed the doctor that he was suffering from an attack of piles. In the eyes of the average layman the term "piles" covers the multitude of ills to which the human rectum is heir.

Acting on the assumption that as it is the patient's rectum, the patient could not possibly err in his diagnosis, "Doctor So and So" simply takes his word for it and prescribes his cure-all, which is usually an ointment of more or less (usually less) value, and assures him that an application of this ointment for several days will unquestionably bring the relief he so ardently desires. Now, it may happen that this cure-all will produce the desired effect, and that the patient will suffer no further trouble. If it does so happen, it is due to the fact that the doctor is a good guesser, and it is one of those cases where the patient recovers in spite of the doctor.

On the other hand, and in quite the majority

of instances, the patient will fail to gain relief; instead, the condition will remain at a standstill or become aggravated. The patient reports the progress of his case, or it should be rather said the lack of progress, to the doctor, who looks wise, remarks that the case is one of unusual obstinacy, and prescribes another ointment. As in the case of the first ointment, the latter one will usually fail to produce the desired result. Again the patient visits the physician, and the performance just described is repeated. This occurs again and again until the patience of the patient becomes exhausted, and, in consequence of this, his faith in the doctor is destroyed and he seeks relief elsewhere. All this is due to the all-too-common error committed in the first place of allowing the patient to make his own diagnosis, and omitting the necessary and important examination following which a correct diagnosis could, in the majority of instances, have been made and a proper course of treatment instituted, which would have brought peace and comfort to the patient and satisfaction and credit to the physician.

When a patient visits a doctor's office for relief from some trouble of the rectum or anus, it is the doctor's duty to himself, as well as to the patient, to rely on whatever the examination which he personally conducts reveals in making a diagnosis. He may be guided, but he should not be ruled, by the patient's opinion of the nature of the trouble, or by whatever advice or information may have been offered the patient by some other physician.

As regards that portion of the title of this paper referring to early diagnosis, it may be said that unfortunately this is not always possible. There may be a masking of the symptoms, or else the condition has not developed sufficiently to permit of a positive or definite diagnosis. A thorough examination, however, is always possible, and by no stretch of the imagination can conditions exist which would permit the omission of an examination.

If the examination is thoroughly and carefully made, and it is found impossible for some reason to make an immediate diagnosis, it is through no fault of the doctor, and he can rest easy in the knowledge that he has, to the best of his ability, done his duty; but if he has failed to make a diagnosis or has made one incorrectly, and in addition has failed to make a thorough examination, he cannot escape responsibility.

*Read before the O. M. C. O. R. O. Medical Society, at Grayling, Mich., May 15, 1912

and the contempt and criticism which is extended to him by the patient and the patient's friends is well merited.

Examinations of patients suffering from diseased conditions in this region should be historical, ocular, by means of palpation, digital, and instrumental.

It is unnecessary to more than mention the historical examination, as you are all familiar with the method of conducting such a one. It may be said here, however, that it should be carefully conducted and duly considered before proceeding with the other steps of examination, so that having it in mind, we may be ready, should the occasion arise, to associate it with conditions which may be revealed further on in the examination and with which it may be connected. Before proceeding with a description of the other forms of examination, the position of the patient on the examining table should be considered.

The three positions most generally employed in conducting an examination in this region are the lithotomy, the knee-chest, and the Sims or left-lateral; of these three the one which will be found most practical and is most generally employed is the Sims. This position possesses all of the advantages of the other two without many of their disadvantages and discomforts. The one exception to this rule is in cases where it is desired to make an examination high up in the rectum or sigmoid when it is very often of advantage to have the rectum inflated by means of the air which rushes in through the sigmoidoscope when the obturator is withdrawn, or else when it is necessary to inflate the rectum by means of a sigmoidoscope with a pneumatic attachment. In these cases the knee-chest is the position of choice. With the patient in the Sims position, his buttocks drawn well over to the side of the table at which the examiner stands, the remaining steps in conducting the examination may be undertaken in the following order: (a) Ocular, (b) palpation, (c) digital, and (d) instrumental.

(a) Ocular: By this method the general appearance of anus and surrounding skin is noted, and careful attention should be paid should any diversion from the normal condition be found. This method will also reveal external hemorrhoids, ulcerations, condylomata, eczema, external openings of fistulae, etc.

(b) Palpation: By means of palpation, deep-seated abscesses, which have not yet pointed, are located, hard pencil-like fistulous tracks can be made out and traced, and the attention of the physician drawn to any unusually sensitive condition of the external parts.

(c) Digital: In conducting this method of examination the finger should be well-anointed with vaseline or any other suitable lubricant, and placed at the anal opening. No forcible attempt should be made to insert the finger, as the sphincters will stubbornly resist, and an entrance under such conditions can only be effected at the cost of a great deal of pain to the patient. This is absolutely unnecessary. By placing the properly anointed finger at the anal orifice and practicing a boring motion, and at the same time exerting constant pressure, the sphincters will gradually relax and the finger will pass into the rectum in a manner that is surprisingly easy to both the doctor and patient.

The assertion has been made that the educated finger can determine practically any diseased condition of the rectum. This is a broad statement, and one that can hardly be verified. It is a fact, however, that the educated finger is a great aid in determining many abnormal conditions in this region, such as undue spasm of sphincter muscles, unusual flaccidity of these muscles, which latter is often an indication of the existence or onset of constitutional diseases, internal fistulous openings, polyps, strictures, impacted feces, and internal hemorrhoids, which by means of long inflammatory process have become thickened.

(d) Instrumental: This is the final step in conducting examinations of the rectum and anus. It is optional whether a speculum or a proctoscope is used, it being simply a matter of choice, some doctors preferring the speculum and others the proctoscope.

The instrument should be introduced in a manner similar to that by which the finger is introduced. Care should be taken that the instrument is neither too hot nor too cold, and that it is thoroughly lubricated. Whether natural or artificial light is to be used is also a matter of choice. By this method of examination, conditions high up in the rectum beyond the reach of the finger can be made out, and conditions lower down which have been noted by the digital method can be verified.

Each one of these methods is of great importance, and in the average case each one should be employed. There may be occasional cases in which it will be found necessary to omit one or the other of these methods, as, for instance, in cases of stricture where it is obvious that the use of an instrument would be impossible; the average case, however, not only permits the use of each and every one of the methods here described, but the doctor is not doing his full duty by the patient if he fails to employ them all.

In referring to the matter of early diagnosis, inasmuch as medical men generally recognize its importance, it need only be said that in diseased conditions of the rectum and anus it will often be the means of saving the patient from much suffering that is absolutely unnecessary, and, in addition, will be the means of discovering in their incipency many diseases which, if neglected, will actually jeopardize the patient's life.

When all has been considered, the examination is by far the most important step in the conduct of these cases. On it rests the diagnosis, course of treatment, and final outcome, and, recognizing its importance, no physician is justified in neglecting it in any particular.

406-7 *Fine Arts Building.*

Proceedings of Societies, Etc.

EIGHTH MEDICAL COUNCILOR DISTRICT WITH GUILFORD COUNTY MEDICAL SOCIETY.

(Continued from last issue.)

Dermoid Cyst With Report of Case.

Dr. C. E. Wilkerson: I have not written a paper, neither do I intend to offer anything very special on the subject, because there are people here who know a great deal more about it than I do, but I am going to give you a report of a case that, in some respects, may be out of the ordinary.

Dermoid cyst may grow on almost any part of the body. It gets its name from being like skin, and it usually grows from, in, or around the ovaries; and if I were going to write a paper on this subject, I would take a specified subject and discuss the dermoid cyst of the ovary.

It is a growth that may reach considerable

size. It may be very small or reach the size of one's head, and it can get to be larger than that. I said that these growths usually start in or about the ovary or the broad ligament, and they will have some of the elements of the body, or else they would not have gotten their name. They usually have traces of skin or traces of nails or hair, or something of that order.

The case I wish to report to you to-day is that of a baby sixteen months old. There may be some doubt as to the diagnosis; if such is true, we will hear from you. This baby came from Arkansas to our place last June. It had been to Little Rock, Ark., Memphis, Tenn., different places in Missouri, and finally landed over in Randolph County, N. C. It had a growth of some kind invariably diagnosed as cyst of the liver or kidney. The baby was fairly well nursed, but had a tremendous growth of some kind. I examined it as best I could, and said, "This is a case for operation." I named the price and the mother agreed.

I felt that the growth was of pelvic origin, although it had grown to the size that it was well under the right side and had the ribs bulging up. The child was prepared for operation. Some iodine was used and lots of soap and water; it was chloroformed and an incision was made, a good, long incision in the right side. The tumor was so large that I could not deliver it, and I hesitated to make the incision any larger. The fluid measured more than one gallon. The child went to bed from shock, but did not die, although it came very near it. The shock was produced by the suspension or drying away of the fluid. We followed down, as best we could, the leadings of the cyst and found that it was located in the pelvis instead of the upper portion of the abdomen. It was not attached to a small pedicle, but it was attached to a broad ligament. It was something like one's hand, or even broader than that.

When I was dealing with that case I wished that some of you good fellows had it. We delivered that tumor successfully and examined it. The tumor was relieved in the usual way, by tying off by sections. The pedicle proper was so broad that it was not safe to tie and cut away the tumor. The patient got along very nicely, left the hospital in eleven days, and, as far as I know, the child recovered.

The tumor had one well ossified bone. You

may say, "You cut off one rib in order to report it to the Guilford County Medical Society," but I did not. The bone was very well organized. It had traces of hair, not well formed hair, but hair; and we can say positively that the cyst contained bone and hair. After thoroughly examining the cyst, it filled a pint specimen jar very well. I turned it over to the lady, who took it back to Arkansas with her and left owing me \$25.00 for the job.

In looking over the literature and trying to find something like this, I found about three cases of this kind reported. If you have had anything of this kind, we will hear the discussion, or any question in that case.

I thank you very much, ladies and gentlemen, for your attention and for this opportunity of coming before you.

DISCUSSION.

Dr. Moore: I believe that I have nothing to say in regard to Dr. Wilkerson's remarks except possibly on the ground that it comes from an ovary, and that can be doubted when we think of a true hermaphrodite, and know that such a thing does not exist. Probably a male child could have particles of an ovarian substance in the body, but I think the cases of dermoid cyst are reported to be usually found in females, but in very rare instances they are to be found in males. A dermoid cyst could not be confined to an ovary unless you have some of the ovarian substance, and most authorities, I think, doubt this. It never has been proven microscopically that such a thing occurred.

With Dr. Jarboe's permission I will rehearse a case that was in his office that gave a good bit of puzzling about diagnosis, whether it was a growth of the coccyx or an abscess. The man had suffered from pain over the region for a long time. It became exaggerated and the skin for the last year or two had become red over it. Dr. Jarboe incised over this red spot, but he was unable to get very much result from the incision, and so he waited with the hope that the interior partition would break down and possibly relieve the patient temporarily. On the second or third day it seemed that hair was brought out, and with subsequent probing he was enabled to remove long hair, well developed, and a substance that looked like sebaceous material, such as you find in those cases re-

ported of dermoids in males. This was a male, about twenty-six years old. It was a dermoid cyst in the post-rectal space between the rectum and the top of the coccyx, well up.

I believe that is all I have to say.

Dr. Wilkerson: I have nothing to add except that I did not speak of the character of the fluid. It was thickish, yellowish, straw colored.

Dr. G. F. Duncan, High Point, N. C., read a paper on

Remarks on Etiology and Treatment of Retroflexion and Prolapse of Uterus.

This paper was not handed in for publication.

The courtesy of the floor was extended to Dr. Robeson, of Philadelphia, and all other visitors present.

DISCUSSION.

Dr. Robeson: This meeting is to me in the nature of instruction, and I feel that I can offer no suggestions at all. One question I would like to ask the doctor about, and that is ventral suspension in case of complete prolapse with a large, heavy uterus. What would he do? Would he do the Baldy operation in a case like that? I used to work with Dr. Baldy in the Polyclinic. In the majority of cases he did an operation, but when there was a partial prolapse where he did not have a very heavy uterus and the support was very good, and in a lateral one, as he spoke of, he would sometimes take off a portion of the cervix. I do not think I ever saw Baldy or any of those men do an operation where they had a complete prolapse with a drawn ligament operation, such as he spoke of. In cases that I have seen, most of them have been hard-working women where they have a bad prolapse. In these cases it is pretty hard to keep the uterus up, even after fixing the perineum, and this other operation of shortening the round ligament, when they go back to the wash tub they usually have a prolapse, and these are the cases that are hard to mend. I would like to ask Dr. Duncan if, in these cases, he has effected a cure by means of the Baldy operation and fixing the perineum.

Dr. Williams: I do not believe that we have any operation suitable for all cases. I believe that every case is a case of its own, and I do not believe that one man's operation is bene-

ficial in all cases. If you shorten the round ligament it will hold it forward, but you are going to have prolapse in many cases, and I believe yet that the field is open for work along this line. Shortening the ligament holds the uterus up and holds it forward, and you will find that in a good many cases the cervix will project out of the body.

I have never seen it, but I understand that some fellow has recently gotten out an operation shortening the uterus. I was working on this line, but before I got a report I understood some man was already doing it—shortening the utero-sacral ligament which pulls the uterus backward, together with shortening the round ligaments, at the same time holding the uterus more nearly in its natural position.

In the Baldy operation in a good many cases you will find if you follow your patients they suffer with pain afterward, either in one ovary or the other. As to what causes this I am not positive, but my opinion is that the ligaments are pulled out under the ovary and under the ovarian ligature, passed around behind the uterus and they sag on the ligament of the ovaries and produce enlarged veins of the ovarian vessels, and that gives rise to the pain in these cases.

As I have said, I believe there is no operation that is the proper thing to do in all cases. You have to select your treatment according to the case. In some cases there is nothing to do except hysterectomy. I believe the other operation is going to win some day, shortening the utero-sacral ligament, together with the shortening of the round ligaments. It is a question as to what is the effect of subsequent pregnancy upon the operation just named.

Dr. Hubbard: The majority of these men are just common practitioners, every-day men, and we usually send our cases of this kind to some surgeon, and I have been thoroughly disgusted with operations of this kind. I have three patients who had this round ligament shortening, and I do not count it a cure in thirty days or thirty months, for that matter. It may be unsurgical and all that, but the thing that does the good is the thing we want. I believe in what Dr. Williams said, that the last thing has not been said and the thing has not been fixed. Often you will find a retroversion or a retroflexion, and you do not let them know

that you have found it. Every one of you men have found it and let it go for years, and they will marry and get along happily and have no bad results. A doctor talked operation to me in regard to one of his patients and asked me what I thought about it. I told him that I did not know, but I thought her nerves needed building up, and if we build them up a large number of these cases that we think are incurable will clear up nicely.

Dr. Fay Robertson: I have noticed these cases for three years which have been operated on in the hospital by the Webster-Baldy method, and have followed them in the dispensary service, and I have never known the pains that the doctor speaks of. It has given entire satisfaction. The Baldy shortening of the round ligaments and shortening of the uterine segments at the same time, and, if necessary, operating on the perineum, as far as I know, has been successful. In treating these cases of prolapsus where the uterus is very large, Webster brings the uterus down and takes out a wedge-shaped section, closes it up and sets the bladder on top of the wound he has left there, and that operation has been right successful. I cannot see that it would remedy matters a great deal if the whole vagina is taken off. What difference is it to the woman if she has prolapsus uteri or prolapsus vaginae? If you take off the vagina, I cannot see it would do very much good.

Dr. Wilkerson: This is a very interesting paper. Dr. Hubbard is well known to me, and I feel very much like he does about this thing. It is something that comes before us almost daily in doing work in the smaller places. It is a great question, and I came over here for information, and I am going to get that if I can before I go back. I have at the present time a lady about sixty years old, and it is up to me to relieve her, and I am going to put this case before the Society and let them say what she needs. She has complete prolapsus of the bladder. When she is in a recumbent posture the uterus is all right, and when she gets on her feet she has almost complete prolapse of the uterus. Her bowel is protruding. They say to me, "Can you cure her?" I have told her "Yes, I can cure you." There are lots of things right there to decide upon. Here is a woman sixty years old. What would you suggest?

I will give the results of another operation.

I do not care whether it is the Baldy operation, or whether it is the other fellow's operation, but I believe in the operation that will relieve the patient. A colored woman came to me and said, "My baby is fourteen days old. When I stoop down to pick up a bucket of water, I cannot retain my urine. The uterus is all out. Can you do anything for me?" I said, "Yes. I can cure you." It was easier to say that I could cure her than it was to do it. I thought that she feared an operation so much that she would never come back. She submitted, and this is what we did: The perineum which was the support was torn away. I did not do the operation that I had learned to do, but a modification of all the operations. We drew up these muscles and made a good perineum. Then there was the bladder. If I take the uterus up, what will I do with it? We simply dissected off a portion of the vagina and left a small portion. You cannot find that in the text-books; it is not given. We were obliged to do something to cure the woman, because I had promised it, and her uterus was still down and the bladder was still down. I made a shelf for the uterus and pushed it back up where it belonged, then we opened the abdomen and fixed the bladder. That was three years ago and to-day she is a well woman.

This is a thing that confronts us almost daily. They come to us to get cured, and if we tell them we can cure them we have to do it. I want the Society to tell me what to do with the white patient. She is not so free to submit to an operation as the colored woman was.

From the Audience: Treat her like you did the colored woman, doctor.

Dr. G. F. Duncan: My hope in getting up this paper was to get a very free discussion. Regarding the question that was asked by my friend, Dr. Hubbard, in regard to his interpretation of certain conditions of the uterus that did not need treatment, we must have a condition that needs surgical treatment before we apply surgical treatment. Many displacements of the uterus need no surgical treatment, and it would probably make them worse. In this paper I was simply speaking from personal experiences we have had in our work, and also in favor of the one operation as against the ventro-suspension. Not that ventro-fixation did not yield as good results in relieving

the prolapsus, but it brought on a condition that we have been unable to relieve so far. It brought on a condition of the bladder such that there are three cases of which I know where we will have to invent some kind of new operation to relieve the old operation.

I agree with the doctor that it certainly will hold the uterus up, but if we convert it into an anterior displacement and cause a forcing of the bladder down, creating a displacement that no manner of means will relieve, we have a worse condition than we had to begin with. Let your patient alone rather than invite other displacements which are worse. But the fact that any operation will do the work is well, but we get a fixation of the uterus that is frequently incurable.

We have not in our experience been doing the Baldy operation long enough to know what effect it is going to have on pregnancy, but, on scientific principles, it should have a good effect, because it makes it a movable organ which nature endowed it to be, and for that one condition alone it should merit some attention. We may have choice of operations. We may choose this, that, or the other. Before the menopause, where the uterus is not very heavy, we have been doing the round ligament operation. I think everybody has failures, but where there is no hope of the operation doing any good we do not do it.

Intra-Nasal Illumination of Frontal and Maxillary Sinuses Through Artificial Opening for Chronic Sinusitis.

Dr. W. P. Reaves, Greensboro, N. C., did not read a paper, but gave an illustration of work done on patients by means of a new sinus punch invented by him.

DISCUSSION.

Dr. Davis: I think these practical demonstrations are very fine. To any one who is unacquainted with the work it shows that Dr. Reaves is doing some good work. I have not had an opportunity yet of using his instruments, but the apparent ease with which he has gotten into these openings, and demonstrated the fact he has by illumination, shows that it is very good. I have recently seen some work of Dr. Ingle, of Chicago, and it was quite a great deal of trouble to get his instrument into the frontal sinus, and, of course, that is the great object. His

method is to pass a probe, which is a very difficult thing to do, and after this he passes a drill and makes an opening large enough for the insertion of his object, which he leaves. That is very painful, even though he had all the opening he could get. Another thing, if Dr. Reaves can use this instrument for maxillary sinus work without having to remove a portion of the inferior turbinate, that in itself is worth a great deal. Ordinarily we have to do that to make an artificial opening in the antrum. To get into the natural opening, I find that it does mighty little good.

I did not catch quite all that Dr. Reaves had to say in the cases he presented and in his remarks, but I am very much interested and very much pleased to see that he has brought this subject up at a meeting of men where there are so few men present who are working in this line. There can be no doubt but that the general practitioner should bear all these things in mind as far as he can go to make a diagnosis, for the reason that I believe these sinuses can bring about cranium complications that are serious, and which, if not handled at the right time, and handled promptly, are almost sure to be fatal.

Dr. Reaves: The doctor spoke of the opening in the middle meatus as not being sufficiently large. I find the same trouble. I take off the bulla ethmoidalis, which is usually diseased, in front of the maxillary sinusitis. You can make an opening one-half to three-fourths inch long and from one-third to half an inch wide, and it gives perfect drainage of the maxillary sinus. The old operation usually did not give complete relief. In all frontal sinuses, the anterior of the ethmoid cells is usually diseased, and in this way they reinfect the sinus.

(To be Continued.)

Analyses, Selections, Etc.

Everybody's Doing It.

The above caption of a popular song might truly be applied to the present trend in medical education. Everybody's doing it. Doing what? Setting up preposterous standards for the medical student to meet within the period of his greatest receptibility, and demanding of him from three to four years longer preparation than is to the best interest of the community

and the man himself. In the March fifteenth issue of the *American Medical Association Bulletin*, educational number, Dr. Arthur Dean Bevan makes pertinent remarks along the same lines. The paper clearly shows that the writer is an authority on medical education, for which reason those interested in medical education, especially teachers of medicine, should familiarize themselves with its import. What is necessary and what not for the student entering into the study of medicine has been the battling ground of the highly endowed and commercial schools for the past decade or more. Both are wrong—the entrance standards of one are too high and of the other too low. The one compels the student to spend the best years of his life acquiring a lot of stuff of no earthly use when he enters upon the study of medicine, thus requiring him to waste anywhere from three to four years. The writer does not desire to convey the idea that he deprecates the cultivating influence of a liberal education, the acquirement of which is very pleasant and elevating, but for those who are going to follow medicine as a life's work, it throws them out upon their own responsibilities generally at too late a period. Doctor Bevan states that a general agreement has been reached both here and abroad as to what constitutes a minimum preliminary requirement for medical study. It is: The student should possess a good primary and secondary school education. If the boy enters the primary school at six, he will graduate from the secondary school at eighteen or nineteen. He should have, in addition to this, a sufficient knowledge of chemistry, physics, biology, to enable him intelligently to begin his medical studies. In Canada, England and Germany this additional preliminary training can be obtained in one year of work either in the medical school or in the science department of a university. Then follow four years of medical studies proper and a year or more of hospital internship. According to Dr. Bevan, the Council on Medical Education believes that one year of hospital service should be required before the graduate is permitted to engage independently in practice.

To our way of thinking, Dr. Bevan has struck the happy medium in medical education. If Germany, the recognized leader in medical thought to-day, can produce the men she does

without such stringent requirements, there is something radically wrong with our methods. There is no doubt but that America is suffering from too much pedagogical pedantry. Non-medical educators to a large extent have set the standards, and every school not reaching them is considered behind the times, run for commercial purposes, and a menace to the country. Those schools of extremely rigid requirements in many instances have non-medical men occupying many of their laboratory chairs, or medical graduates who have never practiced. What practical knowledge has either of these classes concerning student needs? As a rule, they teach pure science, and this applies especially to the non-medical teacher. The student of medicine is not after pure science; he is after what is essential and necessary for him to engage intelligently in the practice of medicine. We believe with Dr. Bevan that any system which holds its students until their average age at graduation is twenty-six or twenty-seven years, is imposing an unjust burden upon this student, and especially so when pecuniary returns after this long period of apprenticeship are taken into consideration. Indeed, as Dr. Bevan states, it is nothing short of a crime committed under the guise of the interests of higher education. Then, too, from the standpoint of efficiency it is undesirable.—(*Editorial, Maryland Medical Journal*, June, 1912).

Diagnostic Value of the Salvarsan Reaction.

A. H. Cook, Hot Springs, Ark., says that the theory that the reaction following an intravenous injection of salvarsan is produced by endotoxin eliminated by dead *treponema pallida*, and the deduction that the greater the syphilitic infection the more severe the reaction is accepted by some of the profession to the extent that it is being used by them as a test for syphilis, and as a gauge by which to govern the extent and amount of treatment.

If the foregoing were true, the deductions that, 1. No reaction—no syphilis—no treatment; 2. Mild reaction—mild infection—but little treatment; 3. Severe reaction—severe infection—severe treatment; 4. When no reaction occurs after the second, or subsequent doses the patient may be pronounced cured and all treatment discontinued—would not only be justifiable but accurate and safe.

The clinical evidence in his series of cases at first seemed to support these supposed facts, and, while never administering a dose of salvarsan for diagnostic purposes or to any cases other than those distinctly syphilitic, he allowed the severity of the reaction to influence the length and amount of treatment.

The first case he reports is typical of those upon which this opinion was based. The severe reaction after the administration of the initial dose and the clinical manifestations of a severe infection, with a slight reaction after the second dose, when lesions were healing fast, and no reaction when the last dose was administered, with all lesions healed, seemed to be proof sufficient, especially when accompanied by many like cases, that the employment of the reaction after an intravenous injection of salvarsan as a test for syphilis is accurate and the reaction safely attributed to the elimination of endotoxins by the dead *treponema*.

That a severe reaction is sometimes obtained in mild infections and no reaction in severe infections, however, destroys his belief in these assertions, and, he believes, will influence the opinion of others. The mildness of the second case he reports is shown by the fact that the infection was not old enough to produce a positive Wassermann and no secondaries had developed, yet the reaction was very severe. There was no doubt as to the presence of the *treponema pallida*.

Another type of mild cases presenting a severe reaction after an intravenous injection, is represented by his third report, which is evidenced by the slight secondaries and the ease with which all symptoms were controlled. The patient has been in perfect physical condition ever since his secondaries disappeared.

The class of cases which first caused the writer's disbelief in the theories stated were those which presented a malignant type of syphilis and no reaction was obtained after an intravenous injection of salvarsan. The fourth case reported, by no means an isolated instance, was the most malignant infection, to have been so long latent, that he had ever seen, yet no reaction occurred after any of the intravenous injections. At first, in view of the obscure history, he feared that he had erred in diagnosis, but prompt response to specific treatment proved that he had not.

Cases presenting, after an intravenous in-

jection, phenomena the converse of those exemplified in the first reported, are conclusive that the theories stated are incorrect, and, therefore, that the reaction has no diagnostic value. As an example, he gives the history of what was a very malignant case, thoroughly demonstrated by the resistance of lesions to proper treatment. When the disease was most active, no reaction was obtained after either intravenous injection, but a severe one followed the third dose when all signs of the disease had disappeared. Surely, there was less infection when the last dose was administered than when the first and second were administered.

With such variations in reactions after an intravenous injection of salvarsan, the only conclusion possible is: As a test for the presence of syphilis or a guage upon which to base treatment it is absolutely valueless; and the fact that only a very small percentage of his cases present a reaction causes him to look for explanation of the reaction other than the elimination of endotoxins by dead *treponema pallida*.

As to the cause of the reaction, he is firmly convinced that it is due to the contamination of the distilled water used in the solution, proven by the following experience: Upon first using the agent intravenously a still was inaccessible, and the water had to be brought some distance; consequently, it was obtained on the evening previous to the administration of the dose. While using this water a reaction invariably followed each dose. Later, a still was installed in the building in which he administered the salvarsan, and he began to sterilize the containers, catching the water as it dripped from the still, immediately before using. Into this the necessary amount of salt was placed and the solution boiled. After cooling to the desired temperature, the solution was mixed and administered. Upon adoption of this procedure, he ceased to have reactions except in a very small percentage of cases.—(*N. O. Med. and Surg. Jour.*, June, 1912.)

Etiology of Anaphylaxis.

Doerr (*Wien. Klin. Woch.* Vol. XXV, No. 9) in an original research report on anaphylaxis states that serum-sickness and other associated lymphatic phenomena are due to an increased permeability of the blood vessel endothelium caused primarily by physical blood

changes which in turn are induced by the absorption of antagonistic coagulation ferments.

He conjectures that the sole cause of anaphylaxis is due to a change in the coagulating property of the blood.—(*Med. Rev. of Reviews*, June, 1912.)

"Anesthesiology."

In the A. M. A. Journal, of December 2, 1911, Dr. Arthur Dean Bevan, of Chicago, reports the conclusions drawn from a study during a period of eight years, of various anesthetics and their effects, conducted at the Presbyterian Hospital and Rush Medical College, and combined with extensive study of the literature, in order to be able to make an intelligent choice of an anesthetic. Several of his conclusions are interesting as well as novel. For instance, he finds that after ether anesthesia the power of phagocytosis, upon which depends the destruction of numerous pathogenic bacilli, is reduced for a variable period of time, but that "small amounts of lecithin given subcutaneously counteract the inhibitory effects of the ether." Olive oil internally administered tends to have the same restorative effect in some degree.

He finds that anesthesia from nitrous oxide gas causes "no permanent effects of any significance; that ether causes more harmful effects, and that chloroform causes the most harmful results."

Concerning spinal anesthesia, he says, after some discussion of its shortcomings and dangers: "From what I know of the evidence of spinal anesthesia, and from what I know of the anatomy of the spinal cord, I would under no circumstances which I can now conceive of choose spinal anesthesia for my own case if I required a surgical operation."

Concerning the use of scopolamin and morphine he quotes the protest of his anesthetist, Dr. Herb, after an experience of 15,000 cases. She says: "In selected cases it may be of value, but the use of morphine with atropin or hyoscin (Scopolamin) is absolutely detrimental in many instances." Finally for routine work he condemns chloroform and recommends ether.

He considers nitrous oxide as generally suitable for brief anesthetics only, though he is inclined to recommend it when the kidneys are diseased. "It should not be employed in patients with bad hearts. It should not be em-

ployed in preference to ether in patients who are good surgical risks."

Local anesthesia has "a limited field of usefulness," and if cocaine is used one-fourth grain is the largest dose he recommends, one-tenth being safer. It should be given in normal salt solution with a little epinephrin. If not more than one-tenth grain is given it "may safely be preceded by a small dose of morphine and scopolamin.

"Spinal cord anesthesia has, to-day, no place in surgery."

He believes the administration of surgical anesthesia demands a trained anesthetist.

The article, though presenting little that has not previously been advanced, adds strong support to the prevailing theories and practice of anesthesia in this country to-day.—(*Editorial, So. Med. Jour.*, February, 1912.)

Book Notices.

Minor and Emergency Surgery. By WALTER T. DANNREUTHER, M. D., Surgeon to St. Elizabeth's Hospital and to St. Bartholomew's Clinic, New York City. 12 mo. 226 pages. Illustrated. Philadelphia and London: W. B. Saunders Company, 1911. Cloth \$1.25 net.

What not to do, as well as what to do and how best to do it in minor and emergency surgery, is quite an important matter for any medical attendant. It is often with this very sort of work—especially in small towns, where gossip can spread rapidly as to how cleverly, or how bunglingly, Dr. So and So handled such and such an accident—that a reputation is made or undone all too soon. Many a time in emergencies the management of a single case brings the physician to the forefront in the public eye, justly or unjustly, either as capable and to be relied on, or as one about whom there are many misgivings. While this book was "prepared expressly for members of a resident staff; for the interne's guidance when acting independently; to assist the ambulance surgeon in emergencies," etc.—in other words, was intended primarily for the inexperienced and uninitiated graduate—and should serve this purpose well, the general practitioner likewise will find this volume useful, for there are many helpful suggestions as to the management of emergency cases that it is not always well to ignore, even when "one's repu-

tation is already made." Many of the points noted are usually not even mentioned in the larger works on general surgery.

Honan's Handbook to Medical Europe—A Ready Reference Book to the Universities, Hospitals, Clinics, Laboratories and General Medical Work of the Principal Countries of Europe. By JAMES HENRY HONAN, M. D., Rush Medical College (University of Chicago), M. D.; Special Lecturer on Cardio-Vascular Disease in the University of Georgia; Honorary Member of the American Medical Association, etc. With Maps of Berlin, Edinburgh, London and Paris. Philadelphia: P. Blakiston's Son & Co., 1912. Pages viii-261. 12 mo. Cloth. Price \$1.50 net.

This is an interesting hand-book containing a concise outline of medical work in Europe. It is intended more especially as a guide for English-speaking physicians who contemplate going abroad for post-graduate courses, and gives much data that is practically invaluable in such instances. The information is usually sufficiently explicit to enable one before undertaking the trip to get some proximate idea of where to go for special courses, how best to proceed to get results with least trouble, whom to see, probable costs, etc. An extensive index is quite an important feature. The volume fills a much needed want, and should find a ready sale.

Editorial.

Owners Should Be Required By Law To Screen Dwellings.

From time immemorial, the common house-fly has been regarded with seeming unconcern. His presence, it is true, has been considered something of a nuisance, but objection to him apparently existed chiefly because he was annoying, and again, because he was filthy.

In 1577, Mercurialis, a Venetian, wrote, according to Harrington's *Practical Hygiene*, that "flies go to infected houses, alight upon the sick, and then convey the contagion to other houses and deposit it upon the bread and other foods." This assertion, although never disproved, seems to have attracted but little attention until comparatively recent years. Now, however, the fly has come into the lime-light of professional and public attention as a proven carrier and even, in many instances, a breeder of disease germs. Micro-organisms of tuberculosis, diphtheria, typhoid fever, dysentery, pneumonia, erysipelas, supuration, anthrax and possibly many other con-

ditions, are often disseminated, as has been conclusively demonstrated, through this pestiferous agency.

Common observation appears sufficient, in this instance, to convince the laity that we have a dangerous little enemy to contend with—one that should be guarded against at all times. In fact, the time has come when the person is a rarity who doubts that disease germs are conveyed by this medium. And so we find no difficulty in enlisting at least the moral, if not always the active, co-operation of each individual in a war on the fly.

It is not our purpose here to discuss the various procedures adopted to exterminate this active little spreader of disease. Neither will we attempt to enumerate the methods pursued to keep the fly from entering infected and filthy areas. Such measures, while simple and fairly well understood, would easily bear frequent repetition in order to impress the facts did space permit.

But there is an equally as important matter which has been neglected, and to which attention should be directed; this relates to the necessity for a general and more complete screening of dwellings—a most important preventive measure, and one that should definitely lessen the likelihood of infection. Screens are as essential to the home to exclude flies and mosquitoes—i. e., disease-bearing insects—as are window sashes and doors to keep out the rain and cold; they should, therefore, be considered a necessary part of every household equipment.

When one stops to investigate, he will note that well-nigh invariably houses properly screened are those that are owned by the occupants. Occasionally tenants will go to the expense of buying screens to put in rented houses; more often these extras are limited to the kitchen and dining room. Proportionately few tenants are willing to spend money on rented houses, whether it be for screens, or anything else when it is known that such purchases may be useless in the very next place moved to, because of misfit, etc.

The protection afforded the health of occupants of dwellings by proper screening of doors and windows is regarded by health authorities generally as being positive, as well as being essential to the prevention of typhoid fever, malaria, and other conditions.

For reasons mentioned above, we are of the

opinion that owners of dwellings should be required by law to screen all buildings possessed by them. When this shall have been done, a defensive weapon against much disease will have been placed in the hands of the people, and the results will be seen in a correspondingly lower mortality rate.

Medical Society of the State of North Carolina.

The fifty-ninth annual session of the Society was held at Hendersonville, June 18-20, under the presidency of Dr. A. A. Kent, of Lenoir. The social pleasures and points of interest near Hendersonville added much to the interest and enjoyment of those in attendance. There was a good-sized attendance, and a large number of interesting papers were read and discussed.

Officers named for the next meeting, which will be held at Moorehead City, are: President, Dr. J. P. Munroe, Charlotte; Vice-Presidents, Drs. Fletcher Harris, Henderson; E. S. Bullock, Wilmington; L. B. Morse, Hendersonville; Secretary, Dr. D. A. Stanton, High Point; Treasurer, Dr. H. D. Walker, Elizabeth City; Essayist, Dr. H. D. Stewart, Monroe; Orator, Dr. J. T. Burrus, High Point; Leader of Debate, Dr. J. H. Harper, Snow Hill.

The president appointed the following delegates to the American Medical Association: Drs. J. Howell Way, Waynesville, and H. A. Royster, Raleigh; to the Medical Society of Virginia, Drs. Oscar McMullan, Elizabeth City; H. T. Bahnson, Winston-Salem, and W. H. Smith, Goldsboro; to the South Carolina Medical Association, Drs. Arthur R. Guerard, Flat Rock; Albert Anderson, Raleigh, and J. J. Phillips, Tarboro.

The North Carolina State Board of Medical Examiners, in session at Hendersonville, just prior to the above meeting, elected Dr. W. W. McKenzie, of Salisbury, president, and Dr. B. K. Hayes, of Oxford, secretary.

The Shenandoah County (Va.) Medical Society

Met in Woodstock, June 25, with a large attendance of members and invited guests. A number of interesting and instructive papers were read and discussed. Among those to address the Society was Dr. L. H. Kebler, Chief of U. S. Medical Bureau, who gave an illustrated lecture on the subject of Pure Drugs and Foods.

This Society was organized five years ago largely through the efforts of Dr. D. D. Carter, of Woodstock, who was elected its president at that time, and has been re-elected to that office each year since. The secretary, Dr. Wm. F. Driver, of New Market, was also re-elected at this meeting. Through the special interest and indefatigable work of these officers this Society has now become one of the most active County Medical Societies in this State.

Proposed Memorial to Dr. Rawley W. Martin.

The Medical Examining Board of Virginia at the last meeting suggested that a Rawley W. Martin Memorial Association be formed, and named Dr. A. W. Terrell, of Lynchburg, as temporary president, and Dr. R. S. Martin, Stuart, as temporary secretary and treasurer.

Drs. Terrell and Martin held an informal meeting in Danville on July 2d, with Drs. L. E. Harvie and R. B. James present. It was suggested at this meeting that a suitable memorial would be to erect a building at Catawba for the treatment of tuberculosis, to be known as The Rawley W. Martin Memorial Building.

A general meeting for the purpose of perfecting the organization was called to meet in Lynchburg, July 23d, 8:30 P. M., at Hotel Carroll.

All who feel an interest in doing honor to this great and noble Virginian and helping in a most worthy cause are invited to attend. Further information may be had by addressing either Dr. A. W. Terrell, president of the Association, or Dr. R. S. Martin, secretary and treasurer.

Association of Surgeons of the N. and W. Railway.

The fifth annual session of this Association, held in Columbus and Cedar Point, Ohio, will long be remembered by those in attendance as probably the most enjoyable ever provided by any railway system for its surgeons and members of their families accompanying them. Some of the unusual provisions of entertainment supplied by the Norfolk and Western Railway Company and its officials must be taken as a compliment to its Chief Surgeon, Dr. Joseph A. Gale, in appreciation of his excellent work. It was a source of regret to those present that he and his son and assistant, Dr. S. S. Gale, were unavoidably absent. In the absence also of the Association President, Dr. George

Ben Johnston, of Richmond, Dr. John W. Simons, of Martinsville, Va., presided. Officers elected for next year are: President, Dr. Joseph A. Hall, Cincinnati; Vice-Presidents, Drs. W. V. Atkins, Blackstone, Va.; H. C. Goings, Mather, W. Va.; O. H. W. Ragan, Hagerstown, Md.; Charles Summers, Winston-Salem, N. C.; Secretary-Treasurer, Dr. Thos. D. Armistead, Roanoke. The Executive Committee, who will later name the place and date of next meeting, are Drs. W. E. Anderson, Farmville, Va.; R. W. Holmes, Chillicothe, O.; J. S. Rardin, Portsmouth, O.; Southgate Leigh, Norfolk; J. H. Mapp, Buena Vista, Va., and W. R. Whitman, Bramwell, W. Va.

The Association of Surgeons of the Southern Railway,

At their seventeenth annual session, held in Washington, D. C., in June, elected the following officers for 1912-1913: President, Dr. H. W. Blair, Sheffield, Ala.; Vice-Presidents, Drs. M. W. Stowe, Jesup, Ga.; M. W. O'Brien, Alexandria, Va.; J. E. W. Haile, Rock Hill, S. C.; J. H. Hamilton, Union, S. C.; member of Executive Committee, Dr. R. L. Payne, Norfolk, Va., and Secretary-Treasurer, Dr. J. U. Ray (re-elected), Woodstock, Ala. The next meeting place will be Norfolk, Va., the date to be some time in June, 1913.

The Medical Examining Board of Virginia,

At its June session, held in Richmond, elected Dr. R. S. Martin, of Stuart, president of the Board to succeed the late Dr. Rawley W. Martin, and Dr. Herbert Old, of Norfolk, secretary-treasurer. A new examiner will later have to be appointed by the Governor.

The election of Dr. R. S. Martin as president seems most appropriate, in view of his faithful service to the Board, as its secretary and treasurer, for a period of sixteen years.

About one hundred and fifty applicants appeared before the Board at this session, but names of the successful ones have not yet been announced.

Sterilization of Criminals in New York.

The New York Legislature passed a bill which has recently been signed by Governor Dix, of that State, providing for the sterilization of a certain class of criminals and other defectives confined in State institutions, if, after examina-

tion, it is decided by the Board that the operation would improve the inmate's mental condition or would be necessary to prevent the transmission of crime to his offspring. The Board is to be composed of a surgeon, neurologist and general practitioner, each of not less than ten years' experience. The decisions of the Board are to be subject to judicial review, and will not be effective until after they have been on file for a period of ten days. Several other States have adopted a similar law.

The National Association for the Study of Pellagra

Will meet in Columbia, S. C., October 3 and 4, when a number of prominent physicians, especially from the Southern States, who have been making a special study of pellagra, will read and discuss papers on the subject. Other speakers will include representatives from the United States Army, Navy and Public Health and Marine Hospital Service, Surgeon-General Blue, of the latter service, being on the program for the chief address.

The local committee, Drs. J. W. Babcock, J. A. Hayne, and J. J. Watson, would be pleased to receive suggestions and papers from others who have done special work in the study and treatment of this disease.

Dr. Walter M. Brunet,

Formerly of Petersburg, Va., and a graduate of the University College of Medicine, Richmond, of the class of 1911, has just successfully passed a competitive examination for appointment as physician in the Woman's Hospital, New York City. He will enter on his duties in January next. Dr. Brunet is at present connected with the Staff of Gouveneur Hospital in New York.

Dr. William M. Smart,

Captain U. S. A., who graduated from the Georgetown University School of Medicine, class 1902, has recently been transferred from Ft. Flagler, Wash. to Ft. Monroe, Va. for duty.

National Society of Anesthetists.

Following the Symposium on Anesthesia, at the Atlantic City session of the American Medical Association, June 6, while Professor Henderson, of Yale, was presiding, the above Society was organized, and the following officers named:

President, Dr. James T. Gwathmey, New York; Vice-Presidents, Drs. Charles K. Teter, Cleveland; F. H. McMeechan, Cincinnati, and Yandel Henderson, New Haven; Secretary, Dr. William C. Woolsey, Brooklyn; Treasurer, Dr. Harold A. Sanders, Brooklyn. The object of the Society is to bring the subject of anesthesia to a greater degree of perfection and more uniform safety, and those actively interested in this work are invited to join. Applicants forwarding the dues of three dollars within sixty days from above date, if their names are accepted, will be considered charter members.

Members Reappointed on State Board of Health.

Drs. George Ben Johnston, Richmond, J. B. Fisher, Midlothian, and Lewis E. Harvie, Danville, have recently been appointed by Governor Mann to succeed themselves on the Virginia State Board of Health for a term of four years.

Memorial Hospital, Richmond, Likely to Become a Public Hospital.

At a joint meeting of the Richmond City Council Committees on Finance and Relief of the Poor, on June 28, it was unanimously recommended that the offer of the Charlotte Williams Hospital Corporation, donating the Memorial Hospital to the city, be accepted. If the recommendation of the committees meets with the approval of the City Council, the hospital will become a public institution about the first of the coming year.

Dr. William C. Gorgas Honored.

Drs. William J. Robinson, Claude L. Wheeler, and H. Edwin Lewis, Trustees of the American Medicine Gold Medal Award, announce that the medal for 1912 has been conferred upon Dr. William C. Gorgas, Ancon, Panama, as the American physician who, in their judgment, has performed the most conspicuous and noteworthy service in the domain of medicine during the past year.

Free Hookworm Dispensary for Gaston County, N. C.

The Gaston County Board of Commissioners, at their June session, directed that the County appropriate a small amount of money for the establishment of a dispensary in that County for

the free treatment of hookworm patients. The dispensary will be operated under the direction of Dr. John A. Ferrell for the North Carolina Board of Health and the Rockefeller Sanitary Commission for the Eradication of Hookworm Disease.

Louisiana to Have a State Tuberculosis Sanitarium.

It now seems probable that \$10,000 will shortly be appropriated in Louisiana for the establishment of a State Tuberculosis Sanitarium. In such case, a site will be secured among pine woods in the central part of that State.

American Medical Editors' Association.

Owing to the death of the president-elect, Surgeon General Wyman, last November, the first vice-president, Dr. Thomas L. Stedman, of the *Medical Record*, presided at the Atlantic City meeting in June. Officers elected for the 1913 meeting are: President, Dr. Thomas L. Stedman, New York, Vice-Presidents, Drs. Edgar A. Vander Veer, Albany, N. Y. and George Strobach, Cincinnati; Secretary and Treasurer, Dr. Joseph MacDonald, New York.

Dr. Alfred P. Upshur,

A son of Dr. John N. Upshur, of this city, was among the officers of the Medical Reserve Corps who recently completed the course of instruction at the Army Medical School in Washington. He has received his appointment as first lieutenant in the Medical Corps, and been assigned for duty to Walter Reed General Hospital, D. C.

New District Hookworm Inspector.

Dr. K. E. Miller, a graduate of the Johns Hopkins University Medical School, has recently been appointed by the Virginia State Board of Health as District Hookworm Inspector, to succeed Dr. W. A. Plecker, who has been transferred to the Bureau of Vital Statistics. Dr. Miller's first work will be done in the Fifth Congressional District, where the fight against hookworm is just being inaugurated.

North Carolina Health Officers' Association.

Officers of this Association elected for 1912-13, at the meeting recently held in Hendersonville, are: President, Dr. L. N. Glenn, Gastonia; Vice-President, Dr. George M. Cooper, Clinton;

Secretary-Treasurer, Dr. W. S. Rankin, Raleigh.

Married—

Dr. E. C. Levy, Chief Health Officer of Richmond, and Miss Elizabeth Detwiler, also of Richmond, June 19.

Dr. George T. Divers, of Buena Vista, Va., and Miss Evelyn Martin, daughter of Dr. R. S. Martin, of Stuart, Va., June 26.

Dr. Charles E. Wooding, Charlottesville, and Miss Marie Hortense Early, of Mount Fair, Va., June 19.

Dr. J. D. Willis,

Physician to the Lewis-Gale Hospital, Roanoke, Va., announces that his practice will be limited to the study of internal disorders—institutional, consultation, referred and office cases only.

Medical Corps, Virginia Volunteers.

According to orders recently issued by Surgeon-General Junius F. Lynch, of the Virginia Volunteers, medical officers in the service will deliver lectures on the following subjects to the commands to which they are assigned before July 15, 1912: Camp Sanitation and Typhoid Prophylaxis; Care of Feet; Demonstration of First-Aid Packet and Treatment of Wounds; Fractures, Dislocations, Sunstroke, Heat Prostration, Asphyxiation, Fainting.

Honorary Degree Conferred Upon Dr. Givens.

At the eighty-first annual commencement of Wesleyan University, Middletown, Conn., held June 19, the degree of doctor of laws was conferred upon Dr. Amos J. Givens, proprietor of Givens Sanitarium for Nervous Diseases, at Stamford, Conn.

Obituary Record.

Mr. Thomas Doliber.

It is with deep regret that we announce the death, on June 5, 1912, of Mr. Thomas Doliber, the late president and treasurer of the Mellin's Food Company, of Boston. His business career covered a period of nearly sixty years. He was the founder of the Mellin's Food business in North America, and for nearly forty years devoted his time and energies to its conduct and successful promotion.

THE Virginia Medical Semi-Monthly.

(FORMERLY VIRGINIA MEDICAL MONTHLY.)

Vol. 17, No. 8.
Whole No. 392.

RICHMOND, VA., JULY 26, 1912.

10 Cents a Copy
\$2.00 a Year.

Original Communications.

CONCERNING THE DIAGNOSIS AND TREATMENT OF TOXEMIAS OF PREGNANCY.*

By JOHN F. WINN, M. D., Richmond, Va.

Professor of Obstetrics, University College of Medicine, Obstetrician to Virginia Hospital.

No subject in the range of obstetrics is attracting greater attention, and none attaches greater responsibility than that of toxemia of pregnancy; and, notwithstanding the great amount of work expended in the past few years to find the true nature of this autotoxic state, we are still ignorant of the source of its poison. These words form the opening paragraph of a paper by the writer before the Medical Society of Virginia five years ago, and they are as true to-day as they were then. For the reason that nothing is definitely known, I shall pass by the numerous theories that have been offered for its etiology. The pathology of the toxemia of pregnancy, however, has been well established, but it is quite beyond the scope of this paper to refer to more than a summary of the findings by such Europeans as Bouchard, Jürgens, Kaltenbach, Schmorl and others, and our own no less noted research workers, Ewing, Stone, Strauss, J. Whitridge Williams and others.

Starting with the statement by Bouchard as far back as 1886, that every pregnant woman was more or less the victim of an auto-intoxication, the extensive research work alluded to establishes the fact that pernicious vomiting of pregnancy, albuminuria, acute yellow atrophy of the liver and eclampsia are manifestations of disturbed protein metabolism, evidenced by necrotic lesions in the liver primarily, and by degenerative changes in the kidneys, secondarily, the latter limited for the most part to the secretory portion of these organs.

It is especially interesting to note that the precise lesions found in pernicious vomiting are identical with those belonging to acute yellow atrophy of the liver, and that the chemistry of the urine is the same in both. This is a profound necrosis confined to the central portions of the lobule with no involvement of its periphery. In eclampsia, on the other hand, the anatomic picture is entirely reversed, the lesion being always found at the periphery of the lobule; and, according to Schmorl, produced by thromboses in the smaller portal vessels. It is claimed for this condition to be pathognomonic of eclampsia, as nothing else is known to produce it.

Whether the vomiting of pregnancy, albuminuria, acute yellow atrophy of the liver, and eclampsia are dependent upon a common origin, as claimed by Stone, Strauss, Ewing, Hofbrauer and others, or whether there may be another and distinct cause for the eclamptic group, as believed by Williams, Schmorl, Winter and others, on the basis of dissimilar lesions, has not been determined.

Vomiting of Pregnancy. Given a case of serious vomiting, the point of most concern is its diagnosis and management; if abortion must be induced, when? What are the danger signals, if any?

All persistent vomiting is serious, but all serious vomiting is not toxic. A differential diagnosis will depend largely upon the very careful observance of the clinical phenomena, taken as a whole. If the cause be reflex, its recognition and correction will generally end the symptoms, unless, as is sometimes the case, it is associated with a neurotic tendency. In the diagnosis between the neurotic and the toxic types, the predominance of neurotic symptoms bordering, it may be at times, on a mild or well marked hysteria, the effectiveness or non-effectiveness of suggestive treatment, etc., all taken in connection with the urinary findings, will go a long way in determining the basic

*Read before the Richmond Academy of Medicine and Surgery, February 27, 1912, and by invitation before the Guilford County Medical Society, at High Point, N. C., April 4, 1912.

principles confronting us. If neurotic, a strong impression made upon the patient by suggestion is often followed by prompt and brilliant results. For the suggestive treatment to be effectual however, the patient must be under the attendant's control, and removed from the immediate influence of her family and especially that of her husband. Since such conditions can rarely be hoped for in the patient's home, she should, when possible, be placed in a good hospital where the necessary isolation and the co-operation of a tactful nurse rarely fail in bringing about a cure in a few days. Many cases in the writer's experience could be cited as illustrative of the line of treatment mentioned. On the other hand, if the case be toxemic, with its grave and positive lesions in the liver and kidneys, suggestive treatment of course finds no response. Here, abortion is promptly indicated, and is the only means offering any promise of cure, if resorted to before it is too late. It goes without saying that, when available, the hospital is the best place for all of these cases, whether neurotic or toxemic.

When, in 1905, J. Whitridge Williams in his classic monograph,* whose grouping I have followed, declared that in toxemic vomiting an ammonia co-efficient of 10 per cent., furnished a positive indication for emptying the uterus, it was hoped that the solution of this momentous problem had been solved. Soon, however, conflicting reports from various sources indicated that its value had been over-rated for the reason that the whole picture is accounted for by inanition alone. Norris (*Amer. Jour. Obstet.*, April, 1907), reports a case in which chemical analysis gave 38 per cent. of ammonia nitrogen with recovery without induction of abortion, and in one of my own cases the co-efficient was under 9 per cent., and yet such was the gravity of the clinical symptoms that death ensued, even after the termination of the pregnancy.

When we recall the fact that the carbohydrates have been withdrawn, the fats and tissue protein consumed, it does seem highly probable that inanition must be indicted for being in part responsible for these changes. To supply the carbohydrates, dextrose and glucose solution by the rectum has been tried. In some instances

improvement has been noted, while in others, the ammonia and the toxemia have increased.

Wishing to know the opinion held by him at the present time regarding the value of the ammonia co-efficient, I wrote Dr. Williams a few days ago and I have the pleasure of presenting his reply:

Baltimore, February 23, 1912.

Dr. John F. Winn,
Richmond, Va.

My Dear Doctor Winn:—

In reply to your letter which has just come, I would state the following as my views upon the significance of the ammonia co-efficient in the pernicious vomiting of pregnancy.

Further experience has shown that the matter is not quite so simple as laid down in my article upon the subject, or in that section of the last edition of my text book.

No matter how severe the symptoms may be clinically, I consider that a normal ammonia co-efficient indicates that the condition is not serious, probably rests upon a neurotic basis, and is curable within a few days after rest in bed, regulation of the diet and suggestive treatment. On the other hand, the significance of a high ammonia co-efficient is not so readily disposed of, as it could either be a manifestation of a profound disturbance of metabolism resulting from a toxemia or may be merely a manifestation of acidosis resulting from inanition. For practical purposes, however, the differentiation between the two can usually be made by clinical observation. If improvement follows rest in bed, abundant nutrient and glucose enemata, and forced feeding as soon as the patient can stand it, the latter condition is diagnosed, whereas, the former condition is diagnosed when improvement does not follow the treatment indicated, and is rendered still clearer by the development of jaundice or the appearance of bloody or coffee-ground vomiting.

In the latter class of cases, abortion is urgently indicated, whereas, in the former excellent results are obtained without its use.

In my experience, the pulse rate is of no value in differential diagnosis, as it may be equally high in either condition.

To summarize, a low ammonia co-efficient means that the condition is readily amenable to treatment and abortion need not be considered, while a high ammonia co-efficient may be a manifestation either of toxemic vomiting or of inanition depending upon severe neurotic vomiting.

Yours very truly,

J. WHITRIDGE WILLIAMS.

It is apparent, therefore, that Williams is inclined to regard the ammonia co-efficient more as a danger signal than as an indication for immediate abortion. After all, one must study carefully all the clinical manifestations in every case together with the nitrogen partition, for the interpretation of the latter alone may lead to erroneous conclusions.

The persistence or increase of the vomiting

*Pernicious Vomiting of Pregnancy. *American Gyn. Society Trans.*

after the institution of rest, rectal feeding, saline and glucose enemata, etc., in the presence of a highly augmented nitrogen partition, means most careful watching; while the appearance of the coffee-ground vomit, jaundice, restlessness or coma, and large amounts of albumen and casts, may be, and usually is, but the beginning of the end. The great mistake often made is letting these cases go too long before emptying the uterus.

Lequex (quoted by Ingraham), from his investigations to test the glycogenic function of the liver in toxic vomiting, concludes that it is the most reliable index of the hepatic state. The test consists in giving the patient 20 to 50 gms. of cane sugar, and if the power of assimilation is below one gm. per kilogram of body weight, the prognosis is sufficient in his opinion to demand the prompt ending of the pregnancy. This, however, seems impracticable, because of the large amount involved in the test.

Acute Yellow Atrophy of the Liver. The most serious, but fortunately the rarest form of toxemia of pregnancy is acute yellow atrophy of the liver. Personally, I have encountered but one case. Whether it appears during pregnancy or the puerperium, the symptoms are identical. If occurring late in pregnancy and attended by convulsions, it might be mistaken for eclampsia. Slight or pronounced jaundice, coffee-ground vomiting, coma, death, mark with rapid succession the history. As is the case in toxemic vomiting, the ammonia, as would be expected, is high, and total nitrogen but slightly if at all diminished,

Nephritic Toxemia. Another form of toxemia, the differentiation of which from the ordinary pre-eclamptic group is frequently impossible, is the nephritic variety. In this the urine may be either normal in amount or greatly increased in quantity, but at the same time is loaded with enormous amounts of albumen and casts. Here we have a condition associated with a previous nephritis, generally a chronic nephritis before pregnancy or following an acute nephritis which developed during the pregnancy. While the patient may have headache and occasionally ocular symptoms, she may present nothing of special consequence except edema. She does not appear to be very sick unless the urinary changes have been observed, and yet she may pass suddenly into the condition of convulsions and coma.

Fortunately, this type is not of very frequent occurrence, but the gravest apprehensions should be entertained in the presence of a history of primary renal lesion. Indeed, one may not stop to make a very critical and accurate differential diagnosis between nephritic and pre-eclamptic toxemia, because fortunately, the treatment of both varieties is the same.

Pre-eclamptic Toxemia. The most frequent variety of toxemia is the pre-eclamptic, occurring generally in the latter months of pregnancy and most frequently in the primigravidae. Urinary analysis shows total quantity of urine greatly diminished (in the nephritic form it is normal or increased) with variable amounts of albumen and casts, usually less abundant than in the nephritic group. In mild types there is little change in the total nitrogen content, but in severe cases the total nitrogen and urea-nitrogen are greatly decreased, and ammonia nitrogen slightly increased.

PROPHYLACTIC TREATMENT.

For eclampsia, it is universally agreed that the prophylactic care is of the supremest importance. Some idea of its frequency may be gained from the U. S. Census Bureau Reports. On a basis of 1,291,922 cases of labor at term, there were in twelve months in the United States alone, 4,306 cases of eclampsia. Computing the mortality in private practice at 33 per cent. and upon a basis of one case in every three hundred cases of labor, it will be seen that the appalling number of 1,435 women perished in one year by a disease which is largely preventable.

How can it be prevented unless we keep ourselves informed of the condition of health of our patients at a time fraught with all the dangers of a veritable volcano? How are they to know this duty unless we require them to report at regular and stated periods during gestation in order that appropriate treatment may be promptly instituted upon the merest suspicion of a danger signal? Women should be impressed also with the necessity of making an early engagement of the physician who is to pilot them through the dangerous reefs which may perchance lie ahead of them. It is not enough to examine the urine for albumen. It is not enough to give directions to pregnant women over the telephone. In a paper on this subject five years ago, I made an earnest plea for the early,

unremitting and systematic care of our pregnant women, and I am as thoroughly convinced to-day as I was then that this duty is obligatory. I contend that we must have these patients come to our offices regularly in order that we may, by personal inspection make a careful and critical examination of the condition of their general health for the purpose of "seeing afar off" the earliest signs of disturbed metabolism.

For years, I have zealously sought to impress this conscientious duty upon my students at the University College of Medicine, and it has given me great pleasure to receive personal reports from scores of them since their graduation testifying to the value of this continued personal supervision of their patients. Furthermore, the records of my own private cases show that during the past nine years of rigid surveillance not one of my *regular* clientele has reached the point of a convulsion. I have, of course, had my share of cases exhibiting the pre-eclamptic symptoms, some of them severe in type, but I have reason to believe that had I not received the hearty co-operation of my patients, I might not have been so fortunate in thus warding off eclampsia by prompt prophylactic treatment, and, in many instances, by the prompt induction of labor. The cases of eclampsia I meet with to-day are those fulminant or emergency cases that have had little or no prophylactic management.

Observation has taught me that if you wish an order executed, you must give your directions in such a manner that there can be no misinterpretation as to the necessity of the work to be done. If the patient is told that she must bring to your office a definite quantity of urine on a stated day of the month or week, she places a value on your order commensurate with the need for its execution. If your order is a written or printed one, so much the better. The same is true about every other instruction needed in detail for the regulation of her daily functions.

The following is a copy of the instructions in the form of a four-page folder I am in the habit of placing in the hands of my patients as soon as they engage my services:

INSTRUCTIONS FOR PATIENTS.

(By closely observing the instructions here given you will be in the most favorable condition to resist possible complications, either before or at the time of your confinement.)

Take outdoor exercise in the sunshine regularly,

in the form of walking or driving, but not to the extent of fatigue. Avoid excessive exertion, the lifting of heavy weights, the excessive use of the sewing machine, and especially, sudden jolts and jars. It is well to avoid the rear seat when automobile riding.

Rest is of equal importance with exercise; therefore, lie down for an hour during the forenoon and again in the afternoon. Avoid worry. Secure abundant sleep.

Avoid exposure to cold and wet, and particularly avoid sitting in a draft after being overheated. Avoid constriction of the waist; suspend heavy skirts from the shoulders. During the later months the corset should be replaced by a loosely-fitting corset waist.

Your diet should be nourishing, but not of highly seasoned or indigestible food. Fruits should be eaten in season. Drink *liberally* of water. Milk should enter largely into your diet. During the later weeks eat sparingly of meats; and avoid cheese, sausage, pork and ham.

Daily free movements of the bowels are absolutely necessary. An occasional dose of Rochelle salts, or a dose of some good aperient water must be taken, whether thought to be needed or not.

Send to my office before ten o'clock on the first Tuesday morning of each month a four-ounce bottle of mixed (night and morning) urine. Beginning with the seventh month send it on the first and third Tuesday mornings, and during the last month send this specimen every Tuesday morning. Measure the total quantity of urine for the twenty-four hours next preceding the sending of the specimen and report the amount to me. Keep a memorandum of each measurement in order that you may detect any possible decided reduction in the total daily quantity. Be sure to send your name with the bottle.

Beginning with the eighth month apply to the nipples, night and morning, the following solution: Half an ounce of boric acid dissolved in one pint of clear water which has been boiled. Put the solution in a bottle, also previously boiled, and apply it by means of absorbent cotton. Immediately after applying this solution, anoint the nipples with cocoa butter.

During the last four weeks do not lie down or sit in the water while bathing, but stand in bath tub, or sit on the swinging seat of the same, and pour clean water over your shoulders, in the absence of a "shower attachment." It is equally important that you do *not* use vaginal douches, during the last month.

Send for the nurse as soon as labor begins. Notify me when the pains are regularly established in order that I may arrange my work and be in easy reach when my services are needed. Report promptly any and every emergency.

If any of the following conditions are observed during your pregnancy, it is very important that you report the fact at once, in order that you may be placed on appropriate diet and treatment.

1. Vomiting, or copious spitting of saliva.
2. Severe or persistent headache.
3. Decided falling off in quantity of urine for the twenty-four hours.
4. Vertigo or dizziness.
5. Disturbances of vision, specks before the eyes, etc
6. Swelling of the feet, face or hands.

7. Persistent constipation.

8. Jaundice.

9. Severe itching of any part of the body.

10. Loss of blood, however slight, or any other condition you do not understand. Should there be the slightest loss of blood, go immediately to bed and keep absolutely quiet.

(Note.—The remainder of these instructions includes a list of drugs and supplies to be gotten in readiness two months before the expected labor, but this portion is omitted in this connection.)

BLOOD PRESSURE IN TOXEMIA.

The importance of testing the blood pressure in the latter half of pregnancy as an index of toxemia is now recognized as a paramount duty. In the first half of gestation the blood pressure is low; in the latter half with albuminuria and impending eclampsia, it is high. Taken alone it is not a reliable guide, but with other signs it is dependable. Hirst, in a valuable paper, (*N. Y. Med Jour.*, June, 1910), based upon a large series of cases, found that, for the average healthy pregnant patient the blood pressure ranges around 118 mm. A high and rising blood pressure should be regarded as an invariable and early, often the earliest, sign of toxemia in the latter half of pregnancy. Upon rupture of the membranes there is an immediate but temporary fall of from 60 to 90 mm., followed by relief of headache and epigastric pain. A similar reduction follows the hot pack, and upon the birth of the child a second fall of 60 to 90 mm. may be expected. This last fall is also temporary, unless the patient has been given a copious bleeding. A blood pressure of below 125 mm. need not give alarm; a pressure of from 125 to 150 mm. needs careful watching and moderate eliminative treatment; if over 150 mm., there is need for very active elimination, and possibly the induction of labor.

CHLOROFORM IN ECLAMPSIA.

Chief among the anesthetics used in eclampsia chloroform formerly held first place, not only for the purpose of controlling the convulsion, but also for any operative work incident to the delivery, whether premature or at full term; but in view of the analogy existing between the pathological lesions in eclampsia and those associated with delayed chloroform poisoning, the question, "What shall be the anesthetic in eclampsia?" is of supreme importance. The experimental work upon dogs by Howland and Richards (*Jour. Experimental Medicine*, XI-2, 344) and the numerous clinical reports in the literature abundantly confirm the

correctness of the statement just made. They found after even the slight administration of chloroform to dogs and without operative work, well defined lesions were produced in the liver, and in proportion as the anesthesia was prolonged or repeated these lesions were more extensive and destructive. Furthermore, these changes were identical with those found in eclampsia, viz.: congestion, hemorrhage, degeneration and necrosis.

To determine the relative value of ether in toxemia of pregnancy their experimentation establishes the fact that in no case was there even a suggestion of necrosis following the use of ether. The conclusion is, therefore, evident that chloroform should not be used in the toxemia of pregnancy. Not alone is this conclusion warranted by animal experimentation, but the numerous clinical reports in the literature of delayed chloroform poisoning in man show the identical pathology. It is interesting to know that at the Sloane Maternity Hospital ether was used on twenty eclamptic patients, with only one death, and this patient was said to be practically moribund on admission. In a series of twenty other cases immediately preceding the former series, chloroform was used, with five deaths resulting. It is stated that the twenty cases treated with ether seemed to be as ill as those treated with chloroform (one of the nineteen had thirty-one convulsions). It would seem, therefore, logical that chloroform should be supplanted by ether in all eclamptic cases. After all, is the use of chloroform in the manner it is generally employed in eclampsia proper treatment? Heretofore the universal custom has been to give it for the control of the convulsions—to sit at the patient's head with chloroform bottle and mask in hand, and upon the earliest sign of an approaching convulsion to give the anesthetic quickly and in large quantity before the respiratory muscles were fixed,—the result being that the patient has received a large quantity extending possibly over many hours. The convulsion being the result of the acme of the toxemic state, is only a symptom, and is not the holding of it in abeyance with chloroform analogous to controlling a high fever with a coal tar derivative? It would seem more scientific to address ourselves more assiduously to the elimination of the cause, and less to the treatment of a mere symptom, and, if it be necessary to resort to any anesthetic for the con-

trol of the convulsion or for any operative procedure, to use ether instead. For the past eighteen months, the writer has abandoned the use of chloroform in eclampsia and does not expect to return to it.

(For the benefit of those who may wish to follow up the subject of delayed chloroform poisoning, reference is made to a lengthy report by Dr. J. F. Moran of an interesting case that had taken only $1\frac{3}{4}$ ounce, reported in the *American Journal of Obstetrics*, March, 1910, p. 512, and two other cases reported by Drs. Abbe and White in same journal.)

SHOCK IN TOXEMIA.

The subject of shock in connection with these toxic cases has received much attention of late, and demands most careful consideration. Emptying the uterus in eclampsia is followed most uniformly by cessation of the convulsions, and so urgent is the desire to relieve the patient that too frequently the attendant misinterprets the American dictum, "Empty the uterus as early as possible," to mean *rapid* delivery; but it should be remembered that there is a vast difference between "prompt delivery" and "rapid delivery." The former is the immediate employment of that method or methods which will effect delivery with the minimum of traumatism and shock; the latter, as frequently practiced, is unfortunately the delivery by any method that will most quickly enlarge the cervical canal regardless of the welfare of the patient, as for example, the use of the Bossi dilator, or the hasty and reckless resort to bi-manual dilatation, ending in lacerations possibly up to the vaginal junction. Such procedures do not constitute the modern treatment of eclampsia.

THE ADAPTATION OF METHODS OF DELIVERY.

All cases of eclampsia are not alike in the gravity of symptoms. Each case must be managed in accordance with all the indications present. In the middle months of pregnancy, for example, with a cervix presenting no signs of effacement—long and necessarily unyielding—the greatest troubles are encountered. Edema and softening of the cervical tissues, preliminary and requisite conditions to nature's mechanism of dilatation, are conspicuous for their absence. Such conditions demand patience and judgment if delivery is to be accomplished without violence to the obstructing cervix. The writer believes it is because of the frequent failure to adapt methods of delivery to the in-

dividual conditions of cervical dilatability that the mortality in eclampsia has remained high. Some few cases may require only the rupture of the membranes to reduce blood pressure and conduct the woman through a comparatively easy labor, while others will require more radical measures to bring about the ending of the pregnancy.

Stated broadly, operative intervention for effecting cervical dilatation will depend largely upon (1) the period of gestation, which in turn will determine the rigidity and length of the cervix, (2) the gravida of the patient and other possible individual emergencies. The writer also believes that the greater number of cases in general practice will be followed by better results if the cervix be given the benefit of the preliminary softening which comes from the use of the Vorhees' rubber conical bags, followed by the conservative employment of the Harris manual (one hand) dilatation, and extraction by forceps or version. Exceptionally, when the cervix is so long and rigid as to preclude the use of the elastic bags altogether, or the urgency of the case is such that delivery must be accomplished in a shorter time than would be required for the bags, the vaginal Cæsarean section, under hospital environments, is the ideal treatment. More rarely, at or near full term, and only in the presence of a contracted pelvis, the abdominal Cæsarean section should be chosen in the place of any method of artificial dilatation and extraction by high forceps.

In conclusion, whatever the method employed for terminating the pregnancy, the eliminative treatment by the bowels, skin and kidneys, and the proper use of normal saline must be insisted on. Veratrum has its place, but it must not be given in doses sufficient to produce shock. No reference has been made to the thyroid treatment and other remedies, all of which have their adherents and more or less remedial value.

TREATMENT OF PELLAGRA.*

By E. H. BOWLING, B. S., M. D., Durham, N. C.

The cause of pellagra is a mooted question. For a time it was thought to be caused by the ingestion of ordinary maize when it had undergone certain putrefactive or decomposing stages. This theory is still adhered to by a no means inconsiderable percentage of the medical frater-

*Read before the North Carolina State Medical Society, at Henderson, N. C., June 19, 1912.

nity, but by a large majority I think it has been discarded as an untenable theory. Then the theory of the Buffalo gnat was sprung, and those who were convinced that the disease was not caused by injured corn seized on this as a possible explanation of the cause of the malady; but, after more mature deliberation, I think that nearly every one will now agree that this theory will not hold good, and, so far as I know, the gnat theory now numbers very few adherents.

Then Dr. Mizzell, of Atlanta, Ga., suggested the theory, with almost convincing arguments, that pellagra was caused by the ingestion as a food of the semi-drying oils, and in our case more especially, of cotton seed oil as an article of human food. Dr. Mizzell advanced very ingenious arguments to substantiate his position, and his deductions seem, indeed, plausible, but when we note the existence of pellagra among people who never eat nor ever did eat cotton seed oil in any form, his arguments fall to the ground, because it is axiomatic that the same cause would have to be present in every case to produce the characteristic disease, and the rule would have to hold good without any exceptions. I have seen and treated several cases who came from what we term the back-woods, sturdy yeomen, who lived upon their farms, raised their own supplies, and always had some to sell, who did not know of the existence of such a food, and who had never, to their knowledge, eaten any of it; and I dare assert that this same experience has fallen to the lot of many physicians who have had any considerable experience in the treatment of this malady.

Later Dr. A. L. Nason, of Maben, Miss., advanced the theory that pellagra is caused by the presence of hook-worms. The doctor has made microscopical examinations of the fecal ejecta of a great number of pellagrins and has almost without exception detected the presence of the offending hook-worm. Further, acting upon this theory and giving treatment for the removal of the offending parasite, he has made some very remarkable cures and has relieved, and to all appearances cured, a percentage of his patients that any of us would feel elated to even approach. Still, I can not accept *in toto* the good doctor's deductions. That the doctor finds hook-worms is not to be doubted, but should he search with equal diligence no doubt he would find the

existence of malaria in an equal number of patients, and if we were to base our conclusions on the mere presence of the hook-worm in the alimentary tract of the pellagrin, we might with equal propriety conclude that the disease was caused by malaria. Then, uncinariasis is more particularly a disease of child and young adult life, while pellagra, though not confined to any age, is more particularly a disease of middle and advanced life; and, besides, with the known wide-spread of hook-worms, it is reasonable to suppose that pellagra would be much more prevalent than it is now known to exist. Besides, an argument that I think successfully combats the theory that the hook-worm is a cause of pellagra is the fact that uncinariasis has been known to exist from time immemorial; pellagra is only a recent invader of our coasts.

Should all these theories be faulty, then the question would naturally arise: What is the cause of pellagra? My theory is that it is produced by the ingestion of a pathological germ, which has probably not yet been isolated, into the stomach, and that this germ can only take hold in a stomach which is either neutral or alkaline in its gastric juices. I believe that should the stomach have a normal amount or an excess of hydrochloric acid, this acid immediately proves destructive to the life, or at least to the procreative ability of the germ, and it is innocuous. In all my experience I have never yet seen a patient with pellagra who was suffering with, or who had in recent years suffered with heart burn or any form of sour stomach; when I have tested the gastric contents, I have never yet been able to discover the slightest trace of hydrochloric acid, and, further, when my treatment was directed toward restoring the normal acid to the stomach, and I succeeded, it has always been followed by immediate and marked improvement of the condition of the patient.

I presume all observers have noted a disturbed metabolism and assimilation, which I account for by the toxins produced by the causative germ. This brings about a degeneration of cell force and function which, with the absorbed ptomaines and leucomaines, gives us a vicious blood current which causes a degenerative condition of the whole human mechanism, which manifestation is first evidenced on the digestive system. If we make careful inquiries, we will find that the gastric and nervous symptoms antedate the characteristic rash, which some of us

note as the first symptom, by at least twelve months.

Either the germ or the resulting poisons have an irritating effect upon the lining membranes of the alimentary canal which, as the disease advances, goes on to denudation, thus opening up vast areas for the absorption into the already vitiated blood current of noxious ptomaines. This interferes with the important glands of digestion and absorption, which, of course, interferes with normal metabolism and prevents the formation of normal healthy blood, so we see that one noxious element assists the other; and at last the system, surcharged with abnormal and poisonous material, throws out the red flag of danger of the rash upon the hands, and we can now easily diagnose the disease.

This circulating poison not only interferes with digestion and assimilation, but it also blocks the adrenals, the pituitary body and the thyroid gland, stops the formation of adrenoxidase, which controls the lumen of the blood vessels, and, together with the irritation of the gyrals centralis anterior section of the brain, causes the dilatation and consequent stasis of the blood, which condition accounts for the congestion and rash so characteristic of the disease. This same condition, while visible on the hands, neck and face, is taking place in all parts of the body, for we have all noted the torpidity of the liver, how it does not turn out a normal quantity of even the vitiated bile, which is nature's antiseptic to the alimentary canal, thus allowing the pathogenic germs to run riot, generating more and more poisonous compounds and increasing the already toxic condition, until a kindly dementia draws the curtain over the realization of the patient's own condition and humane death closes the scene.

That the blood is vitiated is plainly evidenced by the gradual but progressive loss of hæmoglobin, which can be noted in all cases. This condition, with the absence of hydrochloric acid in the stomach, is always suggestive of pellagra. With the interference of metabolism we have perverted secretions. All mucous membranes give off a viscid mucous; note the ropy saliva, the leucorrhœa, etc. In the stomach we note the entire absence of hydrochloric acid, with practically no pepsin or rennin. We will find an increase of the mononuclear leucocytes and the myelocytes, while the volume is decreased.

I have noted, further, in every case which I have tested that we have an increased motility of the stomach. If we give a test-meal and try to withdraw the contents for examination, we will find only glairy mucus, showing an irritable condition of the stomach caused by the influence of causative factor, and we will find that this condition, forcing the undigested or partly digested food down into a diseased and irritated bowel, only adds fuel to the fire and increases the pathological condition. In the more advanced stages of the disease, after the nervous system has been depressed by the poison—about the time we note the loss of the reflexes—we will find that we have an opposite condition; that is, a stomach stasis, and when we give a test breakfast and withdraw it about an hour afterward, we will get the debris of the supper before. This condition only comes on when the whole nervous system is partially paralyzed from the effect of the poison.

Symptoms.—In the early stages nearly all cases are constipated. As the disease advances and the system becomes more and more surcharged with the poison, nature makes a desperate effort to rid the body of the accumulated poison, and we find a persistent and aggravated diarrhea. We should never attempt to check this, but take our cue from nature and assist in the eliminative process.

In every case of pellagra, if we inquire into the minute history, we will find an indigestion or an interference with digestion dating back for at least one year, and possibly several years, with a general malaise, with the tired feeling on rising, with no ambition, and a disposition to magnify all complaints. They often secure some quack work on medicine, which they study with assiduity, and they can imagine themselves afflicted with all the ills there enumerated; but when the disease manifests itself in the characteristic rash, I have noted that they can often give a plausible reason, such as sunburn, or using some brand of soap.

My experience is that pellagrins, as a rule, are not afraid of pellagra. It is sometimes hard to convince them that they are afflicted with the disease, and when so convinced they do not evince the least fear of the consequences.

The nervous system early shows the effect of the circulating poison in the blood, a fullness in the head, the occiput giving the most trouble.

They are usually morose, do not care for company, and sometimes even avoiding it; usually suspicious and melancholic, irritable, and a tendency to find fault, very often double vision, and in females when the disease is far advanced we find typical hysteria. I have found that when the hæmoglobin gets to 60 per cent., females always develop hysteria. A burning sensation in the hands and feet is very characteristic. I had one patient who could only be comfortable while pressing the feet against a block of ice.

All reflexes are exaggerated in the beginning, but are completely lost before the end. Pella-gra is the most deceptive of diseases, as the recurring attacks are a year apart, and as the eruption, which most patients and a great many doctors look upon as the disease, will vanish for one or two years under any or no treatment, it gives the patient a sense of security and deceives the doctor into believing that the patient is cured, while the insidious invader is getting in its deadly work and slowly but surely sending the patient on the swiftly-declining road to death.

In my opinion, the secret of meeting and conquering the deadly scourge lies in the fact of an early diagnosis and insisting on treating the patient for at least one year or through the next yearly exacerbation. I am so convinced of the soundness of this that I will not take the responsibility of a case unless he will agree to stay under my care for at least one year, and I think we will all come to the same conclusion when we see a few of our supposed cured patients develop the disease in more malignant form the next year.

Treatment.—If the theory I have outlined above is correct—and I wish to add by way of parenthesis that it is only a theory; there is nothing proved about it except the results I get from following a line of treatment based upon this theory—then the treatment should be, and is, comparatively simple.

My first thought is elimination. This I try to secure by purging, and my favorite is castor oil. This I give in tablespoonful doses every night. I pay no attention to the bowel movements unless I am not getting free enough evacuation, then I increase the dose. To my mind castor oil has several advantages over any other purgative. First, I give it for the elimination, then it soothes the inflamed mucous membranes, and third, what is not used up as a purgative is

absorbed and helps to strengthen the patient. As a further means in elimination when the case is desperate, I give hypodermoclysis of from one pint to half a gallon of normal salt solution once a day, and I have seen this have wonderful effect. In connection with this I give stomach lavage once to twice a day.

As a gastro-intestinal antiseptic I have never found anything that will equal chlorine water given in teaspoonful doses every two hours. The chlorine water should always be freshly prepared, and I would suggest that every doctor advise his druggist how to prepare it. Some stomachs are so inflamed that they cannot tolerate the chlorine water at first. When this is the case, I first get the stomach inflammation under control with a formula of condurango, listerine and carapeptic liquid, then begin the chlorine water.

After the gastro-intestinal tract has been soothed and the acute symptoms have been subdued, I bend my energies towards restoring the acid to the stomach and the hæmoglobin to the blood. To acidify the stomach, my favorite is a solution of one drachm of dried sulphate of iron, one drachm of nitrate of potash, and dilute nitrohydrochloric acid enough to make one ounce. Of this I give from six to eight drops after meals. I give this until I am satisfied I have the stomach in a normal acid condition.

If the hæmoglobin has not yet been restored to a normal point, I give elixir of iron and manganese peptonate for a while. If it does not accomplish the task, I give cacodylate of soda injections, and this has given me wonderful results in some cases.

During the treatment I nearly always give some calcium sulphide and urotropin. I think they are both valuable drugs and have an important part in the treatment of the disease, but I would not depend on them alone.

You have doubtless noticed that I give no arsenic. I have never yet seen where it did my patients any good, unless it was in the convalescing stage, when I give it for the beneficial effect upon the blood.

I have never used salvarsan, and cannot see where the benefit would accrue to kill the poison already in the blood current and not remove the source of supply. If my theory is right, and my experience bears out the theory, if we will remove the source of supply the system will rid

itself of the accumulated poison if we assist in the elimination.

Is Pellagra Infectious?—I think so, else how can we account for the alarming spread of the disease. I do not believe it contagious, but I do believe it infectious, like typhoid.

How Can We Protect Ourselves?—My advice to patients who think themselves susceptible, or where I think they are threatened or are in any way liable to contract the disease, is to eat lots of fruit, to drink lemonade *ad libitum*, to eat pickle, and use every other means of keeping the stomach in an acid condition. If the patient is already, in my opinion, infected with the disease, I begin treatment as though I know he is infected, for this is one instance in which he is four times armed "who gets his blow in fust."

If it be true that the pathological germ cannot flourish in an acid medium, then it behooves us to try to acidify the patient. As I have said before, this is only a theory that has been worked out by watching the course of the disease in some seventy cases, and it is given to the profession for what it is worth to be tested and proved or disproved by men who have more experience and ability than I possess.

502 Trust Building.

ARTERIAL HYPERTENSION.*

By HENRY P. PARKER, A. B., M. D., Washington, D. C.

(Continued from last issue.)

Treatment.—Now as regards treatment, there seems in general a close agreement between writers on the subject. An article by Elsner in *A. J. M. S.* for January, 1911, goes into the matter in detail and brings the subject pretty thoroughly up-to-date. In no condition is it of such importance to remember to treat the patient and not the disease. We must, first of all, keep in mind that persistent high arterial pressure is a conservative process. It is necessary to the individual; without it his bodily functions would not be maintained. I will quote a few authors on this point: In the article on the physics of the circulation in Allbutt's System, written by Sherrington and revised by McKenzie, the following occurs: "At present it is most injurious to base a diagnosis or treatment on the blood pressure observation alone. It will be found that many individuals have what in

the present state of our knowledge might be considered abnormal pressure, but suffer in no way from this, and the subsequent history demonstrates that there was no serious condition underlying." In the absence of some definite cause judgment should be suspended. Janeway, in closing his remarks on treatment, says hypertension is no more to be attacked therapeutically than a heart murmur. Only those symptoms which point unmistakably to inadequate maintenance of the circulation or to sudden threatening of danger give us the signal to interfere. Again, Hodge in his conclusion says in cases of persistent hyperpiesis we are not able to remove the cause—increased resistance. We must, therefore, have a compensatory increase of blood pressure.

Janeway divides the treatment into, first, preventive; second, adjuvant, and third, emergent. The preventive measures, he says, are the general hygienic measures in chronic nephritis. First, rest, the avoidance of unusual mental or physical strain. Rest, however, can easily be overdone. Lack of occupation and consequent introspection may bring on neurasthenia, and the last state of the patient may be worse than the first.

Osler's suggestion that the patient cut down the amount of work and take life more leisurely is the advice best suited for most patients. Of course, a dilated heart will call for rest in this, as in any other condition.

Exercise.—Exercise in moderation is useful for these patients. Osler recommends in arteriosclerosis golf, horse-back, and walking. He says relaxation of vessels of the skin lowers the pressure and relieves the heart. Allbutt says that the return to nature, wandering over the country, with a light diet, a few crackers, and a pocketful of prunes is very useful. He lays great stress upon the mental rest in such a course. It must be remembered too that too much rest will make the muscles, both cardiac and somatic, flabby, and so make every necessary movement the more difficult. All forms of overstrain must be cautioned against. In this connection the care of the bowels is of much importance. Straining at stool, like any other violent effort, is dangerous. Also proper elimination helps to lower the blood pressure. The saline each morning and occasional mercurial purge are very important in the regulation of these patients.

Elsner lays great stress on the relief of the

*Read at a meeting of the Medical and Surgical Society of the District of Columbia, May 4, 1911.

intestinal indigestion and dyspepsia. He says, further, that even a distant irritation, such as a urethral stricture or unrelieved prostate, may keep up hypertension and lead to sclerosis.

Tobacco.—Janeway says to avoid excessive use of tobacco, as does Osler. Elsner quotes Brunton as to the great pressure-raising effect of nicotine and forbids it absolutely.

Alcohol.—Alcohol should most certainly be limited. Elsner forbids it absolutely except where secondary myocardial weakness has supervened.

Tea and Coffee.—Tea and coffee raise the pressure and should be limited in amount. Of late a new method has been devised by which most of the caffeine has been abstracted from coffee. This product Elsner considers very valuable. It will be seen that Elsner is more rigid in his treatment than the other authorities. The question naturally arises as to whether it is worth while to carry out an ideal treatment at the expense of so much discomfort to patients, most of whom are persons well along in life and to whom these restrictions would be very irksome. Too often the result of an over rigid regimen is the patient's refusal to follow all medical advice.

Water.—Water should be used in moderation. Elsner protests against the use of water in such large amounts as is frequently seen in the various sanitariums and health resorts. He says that the heart and kidneys may both be damaged by the over-filling of the circulation and increased excretion.

Diet.—In some cases restriction to a milk diet for a short period is of considerable value. All observers agree on the necessity of cutting down meat. As to whether meat should be absolutely forbidden or simply restricted will depend largely upon the occupation of the patient. In any case eggs and fish will make a satisfactory substitute. It is of interest to note that Oliver is of the opinion that white meat of chicken or fowl is fully as injurious as the red meats. Osler advises a diet consisting of eggs in moderation, fish, plenty of fruit, vegetables, bread, butter and milk. Over-eating is to be avoided. Probably the limitation of quantity in food is as important as the limitation in kind.

It is most important to get a diet which agrees with a patient's digestion. The general rules of

diet for high pressure should not be adhered to in the face of indigestion.

Massage.—Massage and passive motions are useful in that group of patients who are unable to take exercise, as the tone of the heart and somatic muscle is preserved.

Baths.—Osler advises a daily warm bath to relax the peripheral vessels. This has also the effect of increasing the action of the skin and elimination of toxins. In this connection, an article by G. Oliver in the *Journal Baln. and Climat.* is of importance. After investigation at Harrogate, he concludes that heat, whether applied in the form of water baths or in the form of air baths, lowers the mean arterial pressure and raises the venous pressure. These effects are the natural consequences of relaxation of the muscular coats of the arteries and arterioles. Second, percussion baths, that is douche and needle baths, raise arterial and lower venous pressure. Also the cold plunge after a hot bath has the same effect. He assigns as causes, first, stimulation of the ventricle; second, stimulation of the musculature of the peripheral vessels. Third, a combination of warm baths and percussion baths acts by stimulating the tone of the heart and relaxes the peripheral vessels.

A rest and change of scene are probably also important factors in the improvement so often noted at the various watering places.

Electricity.—Conklin, at Dansville, reports good results with a high frequency current. His paper is a very incomplete one and gives no case reports. Elsner says that he was first inclined to think the good results of electrical treatment were largely mental. From observation the past summer at Carlsbad, he thinks that good results are obtained in some cases where the pressure has been lowered, and there has been a coincident improvement in the general symptoms. He mentions particularly a great improvement in certain of the milder forms of angina in association with high blood pressure.

Medicinal.—Iodides are strongly recommended, but must be used over long periods of time to be effectual. Iodide of potash is probably the most efficient, but is also the most difficult of toleration. Iodide of soda and the iodides of rubidium and strontium are better borne. Elsner says in some cases we may start with the iodide of rubidium and establish a toleration for the iodide of potash. Elsner refers also to sajo-

din, iodine, a combination of iodine and thiosinamin and eustenine, a combination of sodium theobromate and sodium iodide. With this combination the theobromine is supposed to increase the coronary circulation and advance the blood. The iodides dilate the vessels and decrease viscosity. Huchard first recommended theobromine as useful in angina, intermittent claudication and spasms. Elsner gives a quarter of a gram night and morning. It must be remembered that theobromine is a purin and a dose must not be too large. Chloral in small doses is also useful in some cases. For pounding, irritable hearts with discomfort, Elsner recommends bromide of strontium, 15 to 30 grains, t. i. d.; also tincture veratrum viride or tincture of aconite root in 2 to 4 drops.

Adjuvant Treatment:—"We now view with alarm fall of pressure not the result of previous treatment and not associated with improvement." (Janeway). The signs of cardiac insufficiency, dyspnea, cough, etc., are the indications for digitalis and its congeners, and no blood pressure reading shall make us hesitate to use them. He says not even in mitral insufficiency do more brilliant results follow digitalis treatment. In some cases the combination of digitalis or other cardiac tonics with drugs of the vaso-dilator group are very efficient. This combination is recommended by some of the English authors. I have tried it personally in a number of cases and feel certain that it is useful.

Emergent Treatment:—Vaso-dilators here find their proper place. Anginal attacks call for nitrite of amyl or nitroglycerin. In these cases spirits of glonoin should be used in large doses; Elsner in fact states that he has used 15 minims in one dose. It is to be remembered of course that the use of morphine in the emergency is sometimes life saving. For the less definite anginal attacks the use of nitrite of soda or erythrol tetra nitrate is useful. Nasal hemorrhage is sometimes promptly relieved by vaso-dilators together with other appropriate treatment. Even in intra-cerebral hemorrhages, vaso-dilators seem to do good in some cases. This probably depends on the fact that there was previous high tension. For abdominal pain morphine is sometimes valuable. Severe headache may also require this drug. Morphine lessens the arterial pressure. For uremia and convulsions, the usual venesection and chloroform are indicated.

The following cases were seen at Freedman's Hospital during the past winter:

Case 1.—B. T., a porter, 69 years of age, was admitted February 15, 1911, complaining of sciatic rheumatism and swollen feet. Family history unimportant. Personal history.—Moderate use of alcohol, excessive use of tobacco, moderate tea drinker. Previous diseases.—Has had the usual diseases of childhood, including scarlet fever and diphtheria. Has had pneumonia, typhoid, rheumatism, pleurisy and Neisser's infection; denies lues. Has had chronic constipation.

Present condition.—Has some shortness of breath, frequency of micturition, dizziness and persistent headache. Physical examination. The patient is a large well-built man, has a marked arcus senilis, the chest emphysematous, and the heart is 14 c. m. to the left over the sixth rib; the rate is 54 to the minute. The second aortic sound is short and snappy; the radial pulse is regular in force and frequency. The vessel wall is palpable between beats. The tension is extremely high. The blood pressure equals 260 plus (Tyco).

Treatment.—Rest in bed, sodium nitrite, one grain four times daily, no meats but chicken twice a week. Sodium phosphate 2 drams each morning.

February 19, 1911.—KI, grains 15, t. i. d. Patient allowed up a while each day. February 20, 1911, blood pressure equals 220. February 23, 1911, blood pressure equals 210. February 28, 1911, blood pressure rose to 240, and on the second of the following month up to 260. Patient put to bed and placed on milk diet. In spite of this the pressure remained at 260 up to March 8, 1911, when erythrol tetra nitrate was substituted for sodium nitrite. From this on the pressure varied from 220 to 230 with improvement in symptoms. The urine showed a specific gravity of 1015 to 1022, with hyaline casts and a trace of albumin found at various times.

Case 2.—T. P., age 74, admitted March 8, 1911, complaining of weakness and pain in the back, and poor sight. Occupation, watchman. Family history apparently negative. Habits.—Uses considerable tea and coffee, steady drinker. Has taken four or five drinks of whiskey daily for 30 years. Has smoked four or five pipes daily. Has had the usual diseases of childhood.

Has had scarlet fever and rheumatism. Had a specific infection 40 years ago with primary sore and secondary symptoms.

Present illness.—Began March, 1910 with weakness of the back. His eyesight failed in May. Has had no oedema but has had some shortness of breath for a year. Has dizzy spells, and has fallen about three times in the past month. Has no frequency of micturition. Physical examination.—The face is slightly congested. There is a slight arterial pulsation in the neck. Emphysema is present. The aortic second sound is ringing. The left border of the heart is not definitely mapped out on account of the emphysema. Ophthalmic examination by Dr. Lamb. Some oedema of the retina. Neuroretinitis. The arteries and veins are full but there are no hemorrhages. Blood pressure on admission 190.

March 8, 1911, patient put to bed on liquid diet and purged; given KI, grains 15, t. i. d. March 10, 1911, patient was given soft diet. Blood pressure from this time ran about 150. Urine showed specific gravity 1020 to 1034, albumin at intervals, but no casts reported.

Case 3.—George E., 75 years of age, a fireman by occupation, was admitted complaining of sharp pains around the heart and indigestion. Family history negative. Personal history.—Uses alcohol, tobacco, tea and coffee moderately. Patient has had measles, typhoid, rheumatism, pleurisy and Neisser's infection. Has had no scarlet fever or diphtheria, and denies lues. Has had pains around the heart for 20 years. Appetite is good and no constipation. Has had shortness of breath on exertion, sometimes spitting up blood. Has had dizziness, severe headache and vertigo.

Physical examination shows a fairly well developed man with visible arterial pulsation of the neck. The lungs show emphysema. The heart is enlarged to the left and markedly irregular. The second aortic sound is increased; there is no murmur. The radial artery is sclerosed; the pulse is small and synchronous with apex beat. Urine shows no casts or albumen. On admission, the blood pressure equaled 185.

Treatment.—Iodides, bromides and nitroglycerin. Patient discharged unimproved. For some unaccountable reason this patient was not purged and the diet was not restricted.

Case 4.—A. B., 52 years of age, a clerk, was

admitted April 7, 1911, complaining of dull pain in the small of back and tired feeling. Past history.—Has been a free drinker, taking three or four glasses of whiskey daily since youth and considerable beer as well. Patient drinks tea and coffee moderately. Has had the usual children's diseases, including scarlet fever. Had pleurisy in boyhood, and Neisser's infection at 14. Lues negative.

Present illness began on April 6th. One day previous to admission, the patient while sitting at his desk, became dizzy and fell unconscious, and was taken to Emergency Hospital. Had had severe headaches and pains in the back, also frequent urination. Has had palpitation on exertion but has had no dyspnoea and no oedema. Has had no gastro-intestinal symptoms. Patient bit his tongue when he fell unconscious.

Physical examination shows a well built muscular man. The face is somewhat puffed beneath the eyes and there is slight cyanosis. There is arcus senilis. The tongue shows an excoriation. There are visible arterial pulsations. The heart is enlarged to the left, the point of maximum impulse being 11 c. m. out at the 5th rib, but the left border was 2 c. m. further out by percussion. The aortic second sound is much accentuated. The pulse is 80 to the minute and is regular in force and rhythm. The artery is easily palpable between beats. The tension is extremely high to the palpating finger. The blood pressure is 240. The urine shows a specific gravity of 1030, with considerable albumin but no casts.

Treatment.—Patient was put to bed and on a rigid milk diet. Was given nitrite of soda, grains 1, every four hours; iodide of potash, 10 grains, 3 times a day; magnesium sulphate each morning. On April 18th, the patient's pressure was 200. He had then a slight persistent headache, which has since disappeared.

Case 5.—N. V., farmer, 45 years of age, was admitted November 30, 1910, complaining of nose bleed. Family history: His mother died of paralysis at the age of 64, otherwise unimportant. Personal history: Uses alcohol, tobacco, tea and coffee moderately. Past history unimportant.

Present illness.—Ten days before admission, while chopping wood, patient had a slight hemorrhage from the nose, lasting about 10 minutes. Nine days later, one day before admission, patient's nose started to bleed again.

The hemorrhage was so profuse that a physician was called in and the nares were plugged, but with only partial success. The bleeding continued until after the patient was put to bed in the hospital a day later. The patient has slight cough and shortness of breath and complains of headache, vertigo and fainting spells. There is a history of constipation. The urine examination showed a specific gravity of 1.031, is negative for albumin and casts.

Physical examination.—The patient is a strongly-built, muscular man. The superficial vessels do not show arteriosclerosis. The heart shows considerable hypertrophy to the left. Aortic second sound is ringing.

Treatment.—An initial purge of calomel and salts was given; on the second day the blood pressure was 186. The patient was put on a liquid diet, given nitrite of soda, grains one-half, every 4 hours, and magnesium sulphate in repeated doses. On the fourth day after admission, the blood pressure was 170 and the dose of nitrite of soda was doubled. The patient had still slight intermittent epistaxis. On the sixth day epistaxis lasted five minutes. On the following day the patient complained of headache and dizziness. The blood pressure was 145. From this time on the patient had no return of hemorrhage and the recovery was uneventful. The dose of sodium nitrite was reduced one-half. The patient was gradually returned to a general diet, and was discharged, relieved, with a blood pressure of 145. Patient has not been heard from since.

The question of over-eating has been neglected in these histories. Its importance is great and the omission is unfortunate.

1518 *Connecticut Avenue.*

THE PROGNOSIS OF TUBERCULOSIS.*

By JOHN J. LLOYD, Jr., M. D., Catawba Sanatorium, Va.

"How long will it take me to get well?" or "Can I get well?" is the question we are usually called upon to answer as soon as we have diagnosed the case. It is because we each have to give a prognosis in every case of tuberculosis under our care that I have chosen this as the subject for this paper.

Prognosis includes any result from complete recovery, i. e., cure, to early death,

and in pulmonary tuberculosis there are many intermediate stages of recovery. While a "cure" in the technical sense is infrequent, as that means the entire elimination of all tubercle bacilli from the body with entire absence of subjective and objective symptoms, yet recoveries from this disease are frequent and few cases of tuberculosis are so advanced that there is no hope for improvement.

The patient may be saved from an early death, and by long continued extreme caution eventually regain partial usefulness, or the disease may become well arrested and the patient be entirely free from symptoms under slightly modified conditions of life, or he may obtain an apparent cure and be entirely free from all symptoms and signs under ordinary conditions of life.

There are many factors entering into the question and it is only by the careful consideration of all aspects of the case that an intelligent prognosis can be arrived at.

In early infancy and extreme age the prognosis is almost universally bad. From eight to fifteen the prognosis is good, for children of this age are usually amenable to discipline, but from fifteen to twenty-two or three they are apt to be unmanageable and rebellious.

Of the two sexes the outlook is probably better in women, for they are accustomed to a more or less indoor, sedentary life, and are better philosophers than men. The regime of treatment is a more radical change for them, and they, as a rule, give more hearty co-operation in "taking the cure." Men are the bread winners, and financial responsibility causes them to worry and become dissatisfied.

Tuberculosis, as we all so well know, is very fatal in the negro race. The Jew is relatively immune to tuberculosis, and the Irish race very susceptible.

A bad family history as a rule makes the prognosis grave, especially if several members have died at about the age of the patient, this seeming to show that the resistance of the family is very low after a certain age is reached. Persons who have pursued outdoor occupations, farmers, teamsters, etc., and people who have always lived hygienic lives, usually give a poor prognosis, for the outdoor life of treatment is not so far different from the life they have always lived and, generally speaking, they do not do well.

The temperament and disposition of the pa-

*Read before the Piedmont Medical Society, at Charlottesville, Va., January 20, 1912.

tient effect very markedly the outlook for recovery. A nervous, high-strung temperament and a disposition prone to pessimism, and fretting at restraint, make a hard patient to deal with. On the other hand, the nervousness may be due largely to toxemia, and after a few weeks of rest these patients sometimes come to be excellent ones, and lend their full co-operation to the physician.

gience, a desire to get well, and force of char-

If the patient has a good degree of intelligence to stick at it in spite of seeming great obstacles, then we feel great hope for the future even in the presence of an advanced stage of the disease.

The saying—"None but the rich can afford to have tuberculosis"—has considerable truth in it, for the life of a pulmonary invalid is of necessity a little more expensive, and his earning capacity usually reduced, but while this is true to quite an extent, the public generally is realizing more than ever before the terrible frequency of tuberculosis and employers are lending their aid to employees in helping them earn a living and at the same time retain their health. It is after a stay in a sanatorium that the hardest time comes for the tuberculous. They have exhausted their means and are not in shape to return to hard physical labor. That is the time for friends and philanthropists to come to their aid and tide them over the period of semi-recovery, when they are neither sick enough to be in a sanatorium, nor well enough to return to their usual work.

Many a woman is doomed to death from tuberculosis by having ignorant and foolish relatives. A man will take the bull by the horns and do what he is told in regard to dropping everything and trying to get well, but a woman under similar circumstances will bow to the wishes of relatives or, it may be, she is entirely powerless in the matter. When we meet opposition from ignorant relatives and friends, we are absolutely helpless until we can convince them or convince the patient in spite of them.

A change of surroundings and often a change of climate will in many cases produce wonderful results. This is a well known fact and one which has been used in the treatment of all diseases from time immemorial. This is one reason for the existence of sanatoria, but their chief value is an educational one. In sanatoria patients are taught what

is good and what harmful for them, and here they have other patients as object lessons. They also learn how to protect themselves and others from their sputum which is of such vital importance. It is a great mistake for the physician to tell his patient that a few weeks or months will cure him, for it always takes a long time.

The experience and personality of the physician count for a great deal, for there is no disease we are called on to treat which requires more tact, patience, and common sense than does tuberculosis. The patient discussion of symptoms, the many little details of every-day life, and the giving of explicit directions to cover any emergency in the future are among the duties of a physician treating tuberculosis. He must be willing to share the troubles and worries, and to keep posted on the symptoms of the patient, for it is often by the attention to little things that we are enabled to foretell and prevent some serious development.

So much for general considerations: now for the symptoms and findings:—

We learn considerable from the character of onset. Generally speaking, the more acute the onset the more virulent the infection or the lower the resistance, and to a certain degree the reverse is true.

The stage of the disease at the time of diagnosis is perhaps the most important single point in prognosis. Recovery in incipient cases is estimated at from 60 to 80 per cent.; in moderately advanced, about 20 per cent., and in the far advanced very small indeed, perhaps less than one. The reason for this is readily understood when we recall the fact that the tuberculous focus at frequent intervals pours out fresh supplies of the invading bacilli to attack the tissues. This invasion is met by the defensive forces of the organism, the leucocytes, antibodies, lysins, etc., and if the defense is stronger than the offense, the process is limited, but in so doing the defensive products are used up more rapidly than the bacilli and the time will be reached, sooner or later, when the defensive forces are so weakened that an extension of greater or less degree occurs. Therefore, if the diagnosis is made early the chances for recovery are greatly enhanced.

The equation between the bacillary virulence and the individual resistance of the organism is a very interesting study and one which throws considerable light on the prognosis. An acute

form of the disease is due to infection by a virulent strain of bacilli with normal or slightly lowered resistance, a more chronic type being due to bacilli of slight virulence and normal resisting power, or virulent bacilli and very great resisting power, etc. The short thick bacilli are regarded as more virulent than the long slender ones.

The presence of a healed lesion in the opposite lung from the one which shows activity speaks for low virulence of bacilli and good resisting power on the part of the patient.

The activity present is roughly shown by the degree of moisture heard on auscultation, and, therefore, much moisture over the area involved is of bad prognostic significance. Involvement showing slight moisture speaks for fibrosis and carries a better prognosis.

With marked or rapid tissue destruction the outlook is grave.

The character and severity of symptoms is perhaps the chief point to consider, especially when taken together with the physical signs. Marked and rapid loss of weight is generally a bad prognostic sign, unless the patient has lived under bad conditions.

A pulse markedly out of proportion to the temperature, and which does not respond in a few weeks to absolute rest, is also a bad prognostic. The brunt of the burden in tuberculosis is placed upon the heart. The fibrous tissue changes in the lungs, the plugging of the numerous blood vessels and the displacement of the heart and tugging on it by adhesions, all form mechanical difficulties for it to overcome. In addition to this, it shares in the muscular weakness of the body from the action of the toxins and has both these factors to contend with.

The temperature is of less value than the pulse, generally speaking, and usually subsides after a few months absolute rest, but occasionally we encounter a case in which high temperature persists even when the lung condition shows certain evidence of healing. These cases must be ones in which the heat controlling mechanism is faulty, and they do badly.

The power of food assimilation is of the utmost significance. We always feel hopeful when we find the patient possesses a good gastrointestinal tract, even in advanced cases. Very often gastric disturbances are symptoms of the disease, and promptly disappear after proper

treatment is instituted, but some cases do well even when there is some organic or serious functional disturbance present.

Cough has very slight significance so far as prognosis is concerned.

Pleurisy is seen in practically all cases at sometime during the course of the disease, but unless dense adhesions form or it occasions continued pain, it is of slight significance. Pleurisy with effusion, unless purulent, does not to any extent modify the prognosis.

Pneumothorax is always a most serious complication.

Tuberculosis of the larynx, while always serious, is by no means a hopeless complication, and if diagnosed early and properly treated, it often gives most satisfactory results. Tuberculous gastritis or enteritis is of the utmost gravity, although occasionally a patient does recover from it.

Nephritis, either acute or chronic, arteriosclerosis and congestive conditions of the liver, add greatly to the gravity of the situation.

Of the intercurrent acute diseases, pneumonia and grip are perhaps the most serious in their results.

The subject of prognosis may be briefly summarized under the following three heads:

1st. *Diagnosis*.—The earlier the diagnosis the better the prognosis, for with a slight involvement there usually goes good recuperative power.

2nd. *Patient*.—The optimistic individual possessed of a good degree of intelligence, who fully realizes the gravity of the situation, and who possesses a large amount of determination and will power, is the one in whom we may expect the best results.

3rd. *Physician*. Experience in the management of the disease and the careful attention to the details of treatment are of course essential, but hopefulness and cheerfulness on the part of the physician, add much toward the ultimate recovery of those who are otherwise doomed to hopeless invalidism.

"For cool comfort,

"Take things coolly.

"Wear as little clothing as the laws of the land permit.

"Give 'fire-water' the cold shoulder. Drink water or buttermilk.

"Consider the man of the Southland. He fusses not, neither does he cuss (in hot weather). He eats, drinks, dresses and toils with full thought of the temperature. Sun-stroke and he are almost total strangers. Go thou and do likewise."—Bulletin Chicago School of Sanitary Instruction.

Proceedings of Societies, Etc.

EIGHTH MEDICAL COUNCILOR DISTRICT WITH GUILFORD COUNTY MEDICAL SOCIETY.

(Continued from last issue.)

Dr. J. E. Brooks, Montrose, N. C., read a paper on

The Nature of the Work by the State Sanatorium for Tuberculosis.

I want to talk a little to-day about the beginning of our work. The most important and interesting point in the practical operation of the sanatorium is the architecture of the building. This is a new feature of the work, and so new that the developments are not all made. The theory of living out of doors is not as easy to carry out in actual practice in some climates as others. In the extreme West, where they do not have rain, they can live out of doors without a shelter, but in this country you cannot do that because a quick rain will come up and wet you, and this makes it so that you cannot keep it up. This has resulted in various buildings being proposed—nothing until recently very far removed from the common sanatorium. It was easy to build a sanatorium with three or four good rooms, with about fifteen or twenty inferior rooms that placed the patient in the house. The question arose, how are you going to solve it? The physician is not an architect, and the architect is not a physician, and neither could solve this question. The architect does not see the importance of the principal things, and if you do not have it well worked out, you cannot get him to see it.

We set about to make some improvements. Our object was to build a building with as many rooms as we might elect to have, and have one room as good as the rest and have the best as a standard for all. We think we have solved that question. It has a corridor twelve feet wide running through it. It has rooms at each side fifteen by fifteen feet, with a space between them fifteen by fifteen, and these rooms are entirely constructed of glass or windows, and the whole thing is a glass house that can be opened at any time. We think we have the best thing. The ward system is open to several objections. In putting a lot of pa-

tients together you get different temperaments. One may want to use tobacco and another cannot stand tobacco, and it is a war of dissension. I have visited the leading sanatoriums of the United States, and I think that we have found a building that is suited to our needs. It is not yet built. But for the bad weather we would have had it advanced far toward completion. We expect to have it done by the first of July.

Reading of paper on *Tuberculosis*. Author's name not given.

DISCUSSION.

Dr. Kent: This thing of getting up and making remarks was about as remote from me as anything possibly could be, and you must know that being taken on my feet somewhat unexpectedly I am rather taken off my feet. However, I appreciate the great work that we doctors have undertaken to seriously combat the great white plague. It is a grand work before us because it is a great work. If we can triumph in this work, as the doctor has told us so forcibly that we can, we surely can triumph almost to perfection—if not entirely—if we do our full duty and do it at the proper time. If we are more or less negligent, as he has suggested, we are blame-worthy. We should fully recognize ourselves that we have failed to do a doctor's duty because it is a doctor's duty to do everything that is in his power for the unfortunate sick one who comes within his office. They may come to see us with a slight cough and the thought suggests itself that possibly that one has tuberculosis, but the doctor lets it pass without having done his full duty, without having made a thorough examination, without having the sputum examined so as to determine if possible beyond question whether or not that person has tuberculosis. If we would always do that thing, give the patient the benefit of the doubt and have the examination made, we would rarely make a mistake. Of course, it is not always determined beyond question, but we would know the condition of the patients in time so that something effectual may be done for them. And I can only try to impress, only wish to impress more earnestly, if it can be done, the importance of doing our full duty in making an early diagnosis and putting the patient under conditions most favorable for his recovery.

Dr. Battle: I have a great many of the doctors of the State on record, and I say it with some hesitancy, yet, to be honest with you, there are 78 per cent. of the doctors of the State, after being carefully selected, who have gone down on record as recommending a man as a first-class risk without having examined the man. Now, gentlemen, I hesitate to say that, but I have you on record. For one year we sent a competent physician over the State to see the policy holders of the life insurance companies. That is where I get my record of 78 per cent. For instance, there was one case where a lady was sitting on the porch and the doctor in the yard, and that is as close as he got to her, and recommended her as a first-class risk. Another, the man was lying on the plow handles and the doctor against the fence. That was as near as the doctor came to him, and recommended him as a first-class risk. I do not believe any man is examined unless all his shirts are removed, and it would surprise you how many were examined through a coat, vest and two shirts. You put a stethoscope on a shirt, and there is slipping of the stethoscope on the shirt and the shirt on the skin, and if there are long hairs on the skin they will make a noise, and it is utterly impossible for a doctor to say whether a man has incipient tuberculosis unless he has examined him with extreme care. If there are hairs on the chest, he should put vaseline on them and keep them from scraping on the instrument.

When a person dies within five years of examination of tuberculosis, I believe that he had it when he was examined, and we have many cases that die within the first year. I do not like to individualize here, because I have a go-back at you to-night and want to give you some more points. The high temperature has often-times been explained by the doctor's saying that a man was at work and perspiring heavily. If he gives that temperature at nine o'clock in the morning, write back and ask him to take the temperature in the evening. I have had a temperature of 99 degrees explained by the doctor that it was because the man had walked fast to his office. If a little later tuberculosis or some other trouble develops, it was manifest at that time. A man died thirty days after examination. He died from cirrhosis of the liver. I may be drifting from the question a little, but I am trying to impress upon us

that we ought to diagnose these cases in their incipency, and when we do not do it we do that person a great injustice, and not to the person alone—the doctor does himself a great injustice not to give that person the opportunity to get well. That person dies, infects the household, and that is one reason why we have so much of the white plague in the State at present. I believe that we ought to be extremely cautious, and when a person has a cold that holds on to him for an unusually long time, I believe that it is tuberculosis; and when a person has grippe for a month or so, that is tuberculosis. I have seen the statement that 50 per cent. of the people had tuberculosis. I have also seen where it was claimed that 75 per cent. and 80 per cent., and even as high as 95 per cent., and some authorities 100 per cent., have tuberculosis, or have had it some time in their lives. The more I look into this, the more I am inclined to believe that one-half per cent is not far off.

Dr. Bahnson: I would like to speak a word in regard to early diagnosis of tuberculosis. So far as the sputum examination is concerned, it is an abominable farce that has been practiced upon the medical profession, to say that you can tell a person has not tuberculosis by failing to find tubercle bacilli. It is only in the advanced stages that you get tubercle bacilli in the sputum. As far as the examination of the chest is concerned, I would not give all the stethoscopes which could be gathered in this hotel for the educated ear, for the practiced ear. I pity these young men who cannot hear with their natural ear; I think they are badly instructed. I guarantee that I can tell the sound with my ear, whether he has a shirt on or whether he has it off.

What I want to say is this, we should send patients with suspected tuberculosis away. Do not wait for a diagnosis, but send them to a place where they can be cured. Dr. Agnew, of Philadelphia, said that the right time to operate for a cancer is to operate before you know it is a cancer. And the right time to treat tuberculosis is before you know it is tuberculosis; before you have the right sound. In other words, we should treat them all with suspicion, and I think all of us are willing to do that. Overcoming the ravages of the white plague will be all the sooner accomplished. If we wait until we find bacilli in the sputum or

until we have prolonged sounds, etc., we are going to have our patients too far gone for Dr. Brooks or the sanatorium to help them.

Dr. Turner: Along the line of a plea for early diagnosis of tuberculosis I want to add just a few words. It seems to me that we have been standing still as a medical profession for at least twenty-five years in making early diagnosis of tuberculosis. In fact, it may have been longer than that, but that registers back beyond me, as I am a young man. It seems to me, as Dr. Brooks has said, that the doctors are sending him too many of the low cases. I have been studying for three or four years along the line of early diagnosis of tuberculosis, and I have about come to the conclusion that none of us can make a diagnosis of tuberculosis in the incipient stage by examining the chest with the ear alone. I have, however, come to a conclusion, and if I am wrong I want to learn that I am wrong, that you have to take into consideration the conditions of the case, the fact that this man has been associated with tuberculosis, the fact that some friend of his or some one side by side with him has had tuberculosis, or that his wife or some member of his family, or some one living in his home has had tuberculosis. These are important factors in making early diagnosis of tuberculosis. Then go farther and find a man losing his buoyancy, losing his strength, eating fairly well, but his food not doing him much good, and go farther still and find him losing weight; examine the condition of his work in his natural pursuit; see the class of work he is doing. For instance, he is a bookkeeper, has been an excellent bookkeeper, and you find him doing sluggish work. Put all these things together, and with a microscope you can make a diagnosis of incipient tuberculosis. And until we take into consideration all of these things that lead up to it, and have these people isolated, and have the low cases isolated, we must expect to have tuberculosis continue to head our death list.

Dr. McAnally: I am mighty glad that Dr. Brooks presented these plans and that they are doing a good deal of work down there. I look forward to the day when we will have a large institution there, well supported by the State and doing a lot of good.

The diagnosis of tuberculosis is very difficult. You tell a patient that he has tubercu-

losis and he will get scared to death. He will want to go off and shoot you. You have to go back to the public school and teach them that they need not be afraid of it before you dare to tell people that they have it. I have a suit pending now because I told a man that he had tuberculosis. He got scared enough to take care of himself and get well. If you tell them, they get angry and scared about what you say. If you wait until you find bacilli in the sputum, you may wait too long and the patient may die.

I want to impress the educational feature, and the inspection of milk, and the cleaning things up in regard to dust. Proper instruction in the school room will be a great factor in lessening the death rate in tuberculosis. We can do a great deal, but the whole thing is not up to us. We need to have an educational campaign. If a man is losing weight he should not wait to see his physician to quit his job. If the people understood tuberculosis and the possibility of a cure, when they begin to lose weight and get anxious about their condition, if they would see a physician early, who would suggest that they might have tuberculosis, we would be on the road to wiping out the "white plague." I believe that the attitude of the public is changing in this matter. People have heard since childhood that it was inherited and incurable, and it does not make any difference what advice you give them they will not come to you. If you tell them they have tuberculosis, they are scared and angry. They think that you are reading a death sentence to them if you mention tuberculosis. I simply want to make a plea to the physicians to by some means get the people to understand tuberculosis. You cannot give any medicine that will make a well man out of a tubercular patient, and he is not going to you in time unless he understands something of the nature of his disease. The public will not take up this work until the doctors show them what may be done, and unless we do these things nobody else will do it. Nobody else knows the situation like the doctors. I just want to say again that I feel mighty proud of the institution.

Dr. Richardson: There is a good reason for a whole lot of the curious things that we have heard in the last five or ten minutes. I am not going to mention that reason; you all can figure

it out if you like. We have a law in this town that if the doctors of this town suspect that there is one of a certain list of diseases they have to notify a certain health officer. You do not have to wait until you have a case of measles or some other things; all you have to do is to suspect it, and you are committing a misdemeanor if you do not report it. Do any of you do it? You do not! You will not risk not being called back any more. When your patients have a little cough nearly all the time and all other indications, do you tell them they have consumption? You all know the reason why you do not. Another thing, all of us have examined life insurance risks. Do you make a man pull off his shirts, every one of them, and turn him down good and hard if you have a doubt? No, you do not! I will tell you why: Because you will not examine any more if you do. The agent will not bring them to you. There are many more he can carry them to. The agent will tell the medical director that he cannot find Dr. A——; he is never in his office.

I am going to tell an anecdote, all good speakers do. Once upon a time there was a man who lived in Greensboro, and he made an application for a ten thousand dollar policy. He had been treated for two or three years for one of the heart diseases. They appointed a time for the purpose of examining that man—they wanted the business, and they examined him and insured him. He died inside of a year and they paid ten thousand dollars. They could have found out what the man was being treated for. There is a reason for all these things.

Dr. Reaves: In this early diagnosis, would it not be better to look after the child from the time that he is two or three years old and up? I believe that there are two ways of not having this disease: have resisting power and stay away from it. If the respiratory tract is free from obstruction, the child will never have tuberculosis. Treating the lower respiratory tract will do no good if the patient is a mouth breather. A child will do better in a room with no ventilation if the upper respiratory tract is free from obstruction than he will if he is a mouth breather and kept out of doors, because if these passages are obstructed he cannot get a proper amount of air.

Dr. Hubbard: I am not one of the 78. I just want to say that there is a man in our country

that they took in the Penn. Mutual and the New York Life and one of the Greensboro companies. He went over to another company to be examined, and they never asked him why nor anything about it. He got his policy. There are two sides to every question. I never examine a man without examining his heart and look out for his temperature. I keep all the literature that is published in North Carolina by me. I do not quite agree with Dr. Bahnson on the stethoscope. I want to say that the insurance companies are after business and they will take it. I have turned down men and expect to do it again.

Dr. Brooks: I think a great deal of good will result from this discussion, and I fully appreciate the support of Dr. Kent. I know where his heart is in work of this kind. And Dr. Battle's idea of examination being insufficient, I am sorry to say, is too often true. The patient has been interrogated by the physician, but the examination has proceeded no further. And I certainly appreciate Dr. Bahnson's idea that you have to treat a patient with suspicion. You certainly will not do him any harm. Of course, when a patient is broken down there is no trouble about the presence of bacilli, but when he has a little uneasy, restless, nervous feeling, with almost no visible symptoms in the lungs, he should be treated with suspicion. I would like to have Dr. Turner come down and make a speech to my pupils. I wish that all of you could recognize the disease in the early stages and send these patients to the sanatorium. You can get a great deal more from keeping a patient one or two months than you can later by keeping him in the best sanatorium in the land for five years. Take the fellow and say, "Now is the time to make the sacrifice." Tell him that his little means will go farther now than at any other time. You can put him in the way of recovery, whereas if you wait you cannot cure him with any amount of money. Dr. AcAnally, you are in the realm of idealism, and that is where we all ought to be to prevent this disease, and let us all join hands and work together for its eradication.

The July, 1912 number of the *Virginia Health Bulletin*, on "The Mother and the Child," gives information which it would be well for all physicians to place in the hands of the young mothers of their clientele.

Book Notices.

A Text-Book of the Practice of Medicine. By JAMES M. ANDERS, M. D., Ph. D., LL. D., Professor of Theory and Practice of Medicine and of Clinical Medicine, Medico-Chirurgical College, Philadelphia. Tenth Revised Edition. Octavo, 1,328 pages; fully illustrated. Philadelphia and London: W. B. Saunders Company, 1911. Cloth, \$5.50 net; half morocco, \$7.00 net.

Anders' is a book not infected by the therapeutic nihilism of the day. Interesting to read consecutively,—it is valuable, perhaps more than any other text, for reference; and it is full in detail, yet not too much so for the busy man.

The author has taken advantage of the new edition to discuss masked chlorosis, erythrocytosis, blocked pleurisy, angina major, minor and abdominis, hour-glass stomach, appendix dyspepsia, heat cramps, psychasthenia, etc.

Various new treatments are included, e. g., Coleman on milk-sugar in typhoid fever, artificial pneumothorax in pulmonary tuberculosis, transfusion of blood in pernicious anemia, auto-serotherapy in serofibrinous pleurisy and ascites (all of which have been described in detail in previous issues of the *Semi-Monthly*), Boston's test for albuminuria, Martinet's method of estimating acidity of urine as a basis for treatment, Breuer and Freud's theories of hysteria, analytical or cathartic method of treating hysteria, and many others.

Taking it all in all, Anders' is worthy of the front row in any and every physician's book shelves.

P.

Editorial.

Food in Health and Disease.

Diet in health and disease is claiming to-day more attention from the medical profession than ever before. That there will ever be a satisfactory agreement for guidance in all cases would be to hope for more than might reasonably be expected, since "what is one man's food is another man's poison." It is a matter of common observation that what is suitable for one individual to eat may, possibly through idiosyncrasy or otherwise, be unsuitable for another.

Tastes differ in degree so as do people in their varying characteristics. Hunger, palatability and digestibility have much to do

with food values, and should not be altogether disregarded in fixing upon a given diet for a special condition. Common sense with a modicum of good judgment should assert itself when necessary to prevent theory from running riot in the management of a case; the needs of the patient as well as his whims must at times be consulted, even though the demands of his system may apparently be directly contra-indicated by well-recognized pathological states. In diabetes mellitus, for example, carbohydrates are ordinarily objectionable, yet occasionally it has been shown that their administration does much good.

The question of diet in chronic forms of nephritis has undergone radical change in the past decade or so, so that, whereas a strict milk diet was formerly thought to be essential, a mixed regimen, including a fairly liberal diet with small amounts of meat, red and white, as well as a limited number of eggs, is now allowed with modifications by the majority of authorities. Thus is general nutrition better maintained,—a consideration that outweighs many arguments against this method of feeding. There are undoubtedly many things during a chronic nephritis that would suggest necessity for a greatly modified or even restricted diet, but this course is usually not prolonged, varying with certain urinary findings, persistent constipation, intractable headache, high arterial tension, presence of edema, or possibly with general indisposition. Theory and dogma were opposed to liberal diet in this disease, and the change has been wrought largely if not entirely by the gradual forcing home of the fact by rebellious patients,—who "would as soon die of Bright's disease as from starvation,"—that a general diet, while at times positively contra-indicated, if judiciously and cautiously taken, may be of untold benefit and even prolong life.

Time is not so far gone but that many will recall the vain appeals of fevered patients for water, which was withheld. Under what theory the physician then labored we do not know, but the change has come, and now water is used freely, not alone internally, but externally as well.

The advanced technique of to-day for examination of stomach contents, etc., has aided greatly in determining the character of food best suited for stated disorders. But it is not well even here to trust too implicitly to the findings

obtained, for only too often is it that calculations are upset, and dismal failure results. Test-tube deductions are not always reliable as to what may happen in the intestinal tract of the human body, very likely because we are dealing with processes susceptible of many modifications—active under certain conditions, and dormant under others—brought about by life, a process around which man's ken is small. In a way, we know certain facts, and that is all.

Much attention has in recent years been paid to the feeding of patients suffering with tuberculosis, and it goes practically without saying that this element of treatment is decidedly important. However, in this malady especially, it appears that an effort is made far too often to treat the disease with not a sufficient consideration of the patient himself. Loss of weight being a prominent symptom, the next thought with many seems to be to supply waste by stuffing the stomach of the unfortunate, with scarcely one heed to associated conditions. Good digestion with consumptives is a most valuable asset, one that should be protected by careful and diligent effort; where this is persistently interfered with, the downward course is rapid, and who enters it "leaves hope behind." Forced feeding, a plan about which much has lately been written, is a procedure fraught with much hazard, for the over-loaded stomach, while able to endure the burden for a time, breaks down eventually, with resulting disaster.

Simple nutritious food, well-cooked, and made as tempting as possible, should be given the patient, but he should not be over-fed and made to eat more than he can digest. This latter injunction should apply to milk and eggs—which ordinarily form such a useful part of the dietary—as much as to any other food. Likewise, no exception should be made in favor of continuing milk and eggs with the diet should they persistently nauseate and disturb the patient.

And what shall be said of the diet in typhoid fever? Here we decide "between the devil and the deep blue sea." Between ulcerated lesions of uncertain extent and the gradual wasting away of tissues, we would jump both ways if we could, in order to do what is best for the patient. For our part, we will continue with the good old plan of liquid diet—butter- or sweet milk, lemon or orange albumen, meat juices, an

occasional egg-nog, etc. Possibly, should our patient waste so greatly that we fear his departure because of starvation, it may be then that we will turn to a "more liberal" diet and let him take his chances with peritonitis. The so-called "liquid diet," despite its lessened caloric value, has to this time served us well, and when our patient died it was not from starvation. While in typhoid and other fevers it may be true the amount of material excreted has been in excess of what was absorbed, it is difficult to convince ourselves that it is better—with a patient absolutely at rest, and running a temperature—to add fuel to the fire when the fire should burn low. Kind Providence knows much about the whys and wherefores of diet that doctors have not yet learned.

The Accomac (Va.) Medical Society,

Organized a little over a year ago, is now in quite a flourishing condition. A majority of the leading physicians in the county are affiliated with it, and it is hoped before long to have the entire number. Bi-monthly meetings are held at Onley, Va.

The election of officers was held in June and the following were elected for the ensuing year:—Dr. John H. Ayres, Accomac C. H., President; Dr. Edgar W. Robertson, Onancock, Vice-President, and Dr. John W. Robertson, Onancock, Va., Secretary and Treasurer.

At the last meeting, July 10, 1912, the following tariff of fees was adopted by the Society to go in effect September 1, 1912:—

| | |
|--|---------|
| Day visits in town or village where attendant resides | \$ 1.50 |
| Day visits in country..... | 2.00 |
| Night visits, double that of day visits. | |
| Uncomplicated confinement cases, no extra visits except at regular rates.... | 15.00 |
| Consultation with another physician, in addition to regular day or night visit | 5.00 |

Doctors Elected to City Offices in Richmond.

At a joint session of the City Council in Richmond, on July 10, Dr. Lawrence T. Price was elected a member of the City School Board.

Dr. R. D. Garcin was re-elected for another term on the Board of Health.

All District City Physicians were re-elected except Dr. Hubbard, of the Second District, who declined re-election, and his place is to be filled. The present city physicians are Drs. J. G.

Trant, J. F. Crane, T. E. Stratton, L. D. Batkins, Julian W. Sloan and E. T. Rucker.

Richmond to Have Still Another Hospital.

The State Corporation Commission has granted a charter to the Stuart Circle Corporation, of this city, to erect and operate a hospital at Stuart Circle, Lombardy and Monument Avenue. The new building will be six stories in height with a basement, fire-proof, and thoroughly up-to-date. The incorporators under the new charter are Drs. L. C. Boshier, Charles R. Robins, Manfred Call, Greer Baughman, R. S. Boshier, Jr., C. M. Miller and R. H. Wright. It is expected that the hospital will be opened during next Spring.

The American Proctologic Society

Held its fourteenth annual meeting at Atlantic City, June 3-4, 1912, Dr. John L. Jelks, of Memphis, Tenn., presiding. Drs. Rollin H. Barnes, St. Louis, Barney J. Dryfuss, New York, and James A. Duncan, Toledo, O., were elected Associate Fellows. Minneapolis, Minn., was selected as the next place of meeting, the exact date and headquarters to be announced later. Officers elected for that meeting are:—President, Dr. Louis J. Hirschman, Detroit, Mich.; Vice-President, Dr. Alois B. Graham, Indianapolis, Ind.; Secretary-Treasurer, Dr. Lewis H. Adler, Jr., Philadelphia; Executive Council, Drs. John L. Jelks, Memphis, Louis J. Hirschman, Detroit, J. Rawson Pennington, Chicago, and Lewis H. Adler, Jr., Philadelphia.

Although the papers and discussions will be published in full in the September number of the *Proctologist*, St. Louis, full abstracts of a number of the papers will appear in the *Semi-Monthly*.

Canada to Have Tuberculosis Hospital for Children.

In the latter part of May, the foundation stone was laid in Weston, Ontario, for a tuberculosis hospital for children. This is the first hospital in the world to be erected for children suffering from pulmonary tuberculosis, and it seems a most worthy project to emulate in view of the fact that the prognosis of tuberculosis is generally better in children than in those more advanced in age.

Plague Situation in Porto Rico.

Since the department of sanitation of Porto Rico turned over all sanitary work pertaining

to plague suppressive measures to P. A. Surgeon Creel, of the U. S. P. H. and M. H. Service, July 8, there has been a marked improvement in the plague situation on the island. Since the first case of human plague recognized on June 14, there has been a total of 37 cases with 23 deaths to July 15.

The plague preventive work is still being kept up at the ports on our Atlantic and Gulf coasts.

The Virginia Pharmaceutical Association,

At their meeting at Natural Bridge in July, elected Charles D. Fox, Roanoke, president; C. D. Owens, Wytheville, and H. T. Littlejohn, Leesburg, vice-presidents; E. L. Brandis, Richmond, secretary, and H. S. Eley, Suffolk, treasurer. They will hold their next annual meeting at Old Point, in July, 1913.

Dr. S. S. Gale Promoted.

Dr. Sparrell S. Gale has been appointed Assistant Chief Surgeon for the Norfolk and Western Railway Company, with offices at Roanoke, Va., effective from July 1, 1912. While Dr. Gale has for sometime past been assistant to the Chief Surgeon, the new position was not officially recognized until the above date, when an order creating such office was approved by N. D. Maher, Second Vice-President and General Manager.

Dr. M. L. Dalton.

We regret to note that Dr. Dalton had the misfortune to lose his office and a part of its contents, in a fire which destroyed almost an entire block in Floyd, Va., on the night of July 5th.

Medical Study Tour.

Full particulars of the Study Tour of the ninth session of the Scientific Improvement International Association, to be held August 8-30, 1912, may be obtained by writing to "A. P. M.'s" office, 12 rue Francois-Millet, Paris, France.

Dr. Mark W. Peyser,

Editor in charge of the Department of Analyses and Selections for the *Semi-Monthly*, is enjoying a vacation at Rawley Springs, Va.

Dr. G. Chambers Woodson,

Of this city, has removed his office to his residence at 2208 East Broad Street.

Obituary Record.

Dr. William Stratton Stoakley,

For many years a prominent member of the medical profession in this State, died at his home in Cheriton, Va., July 11, after a short illness. He was born in Northampton County, Virginia, September 14, 1832, and made his home there except for a short time that he lived in Bath County, Va. After an academic education of private instructors, he studied medicine at the University of Virginia and the Jefferson Medical College, graduating from the latter in 1851. He joined the Medical Society of Virginia in 1873, and had served at different times on the Necrological and Membership Committees.

In the War Between the States, Dr. Stoakley served in the Confederate Army until 1862, when he was appointed to the Navy, in which he served until the close of the war. He was for a number of years physician to the Northampton County Almshouse and also one of the Public School Commissioners of the same county for several years. He retired from the active practice of his profession some years ago, since which time he has devoted much time to writing, his papers being published in various medical journals.

Dr. John A. Moorman

Died at his home in Haleford, near Hendrick's Store, Va., July 16, of Bright's disease. He was born in Bedford County, Va., December 19, 1843, and graduated in medicine from the University of Maryland in 1868, later taking a course at Bellevue Hospital Medical College, New York, in 1873. He had been a member of the Medical Society of Virginia since 1885. Dr. Moorman had a large practice in Franklin and Bedford Counties, and was one of the most prominent and esteemed physicians and citizens in his section. His wife and several children, one of them Dr. J. H. Moorman, of Conieville, Va., survive him.

Dr. William T. McNair,

After a lingering illness, died at his home in Emporia, Va., June 24, in the seventy-eighth year of his age. Though a native of Edgecombe County, North Carolina, he later moved to Jarratt, Va., where he practiced his profession for a quarter of a century and was much be-

loved and highly esteemed. When his health commenced to fail, he gave up active work, and moved to Emporia to be near his son, Dr. R. T. McNair. His widow and this son survive him. His remains were taken to North Carolina for interment.

IN MEMORIAM.

Rawley White Martin, M. D.

1835-1912.

The State Board of Health of the Commonwealth of Virginia wishes to record its grief at the death of its venerable and revered president, Rawley White Martin, M. D., who departed this life at the noontide of usefulness and in the maturity of power, April 20, 1912.

Easily the first among Virginia physicians, Dr. Martin entered the eternal school of the Great Physician after a unique career of service, patriotism and devotion. He was well tutored in the principles of his profession in the best schools of his generation, but he abandoned practice to answer the call of his Mother State, and with a zeal born of the deepest loyalty, rose to a high position in the service of the Confederate States. His was the honor to face the first battle-line of the foe on Virginia soil; his was the distinction to lead the vanguard at Malvern Hill; his was the glory to fall on the crest of the highest mounting wave of Confederate valor at Gettysburg, and his was the privilege, when the flag had fallen, to surrender his separate command two months after the Army of Northern Virginia had laid down its arms.

But famous as he was in the desperate battles of bloody war, he was even more distinguished in the stubborn contests of disease-fraught peace. To him, the humble disciple of the Master, his profession was sacred. His call was to minister to the wants of suffering mankind and his joy it was to go about doing good. No petty professional jealousy marred the splendor of his service, and no blot was there on his escutcheon. Brother physicians throughout the State looked up to him as to a model of their profession and heaped upon him, as a token of their respect, the honors which he, in modesty, would have declined.

His, too, was the broader view of preventive medicine, and of this he was seer and prophet in this Commonwealth. With deep faith in the efficacy of his calling, he saw how it could be applied alike to the alleviation of human suffering and to the prevention of disease. Unmindful of profit and thoughtless of gain, he gave himself, his talents and his faith to the work of public health. As President of this Board, during the vital years of its history, his foresight, his unblemished honor and his love of humanity made him a potent power for good. Virginia has none to take his place.

His colleagues on the Board cannot forbear a word of respect for the man. Humble, patient, courteous to all, considerate of others and thoughtful to a fault, he exemplified the virtues of Christian friendship and inspired all who were honored to know him. Prince among physicians, he was prince among men.

The Board, by this resolution, directs that a copy of this memorial be spread upon a separate page of the record; that a copy thereof be published in the *Virginia Health Bulletin*, and that a fair, engrossed copy be sent the family of Dr. Martin, to whom the Board extends its sympathy in their bereavement.

THE Virginia Medical Semi-Monthly.

(FORMERLY VIRGINIA MEDICAL MONTHLY.)

Vol. 17, No. 8.
Whole No. 393.

RICHMOND, VA., AUGUST 9, 1912.

10 Cents a Copy.
\$2.00 a Year.

Original Communications.

THE CLINICAL VALUE OF THE POLYGRAPH—PERSONAL OBSERVATIONS.*

By PHILIP S. ROY, M. D., Washington, D. C.

Before calling your attention in my brief paper to the uses of the polygraph in determining irregularities of the heart, I wish to mention certain intrinsic qualities belonging to the heart muscle:

1. The heart muscle has the power of producing a stimulus which can excite the heart to contract.

2. The power of being able to receive a stimulus—excitability.

3. The power of conveying a stimulus from fiber to fiber—conductivity.

4. The power of contracting when stimulated—contractility.

5. The power of retaining a certain amount of contraction even when the active movement has ceased—tonicity.

These are the five special functions Gaskell has ascribed to the heart muscle.

One word about neurogeny and myogeny. I think that MacKenzie has offered probably the best suggestion to explain the myogenic doctrine of heart action. MacKenzie says:

"I therefore suggest a working hypothesis that in the evolution of the heart muscular fibers certain functions of the primitive cell were maintained, some of these being more developed than others according to the duties the fibers have to perform; so that while they have come to resemble muscle fibers they, nevertheless, retain in a varying degree some functions which are highly specialized in the nerve cell."

The ink polygraph of MacKenzie has many uses other than determining irregularities of the

heart, but to-day I will ask you to consider only its uses for determining heart irregularities. To do this intelligently we must turn for a few moments and study the primitive cardiac tissue

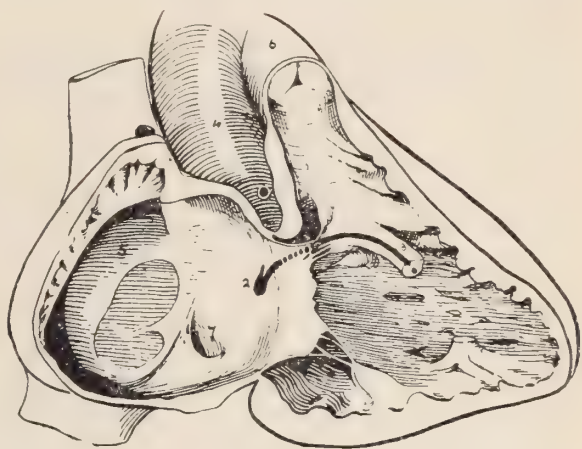


Fig. 1.—Section of a heart, exposing the septal wall of the right auricle and ventricle and showing the position of a portion of the remains of the primitive cardiac tube. 1. Superior vena cava above the sino-auricular node. 2. Auriculo-ventricular node (Knoten of Tawara), from which the auriculo-ventricular bundle arises. The interrupted part represents the main bundle, and the continuation to 3 is the right division, where it is shown in the cut moderator band. 4. Aorta. 5. Right auricle below the superior caval orifice and taenia terminalis. 6. Pulmonary artery. 7. Opening of coronary sinus.—(Keith).

of the heart (Figure 1). It has only been in the last few years that the pacemaker of the heart has been definitely determined. Its location is in the sino-auricular node at the mouth of the superior vena cava, and this point has been definitely fixed by the experimental work of Keith and Flack. From this point the impulse governing the heart rhythm passes to the auricular and ventricular node of Tawara by channels not definitely determined, and from this node passes to both right and left ventricle through fibers known as the auricular-ventricular bundle, or the fibers of His. MacKenzie described five forms of irregularity of the heart:

1. Sinus irregularities commencing in the pacemaker of the heart, due to vagus action.

*Read before the fourteenth annual meeting of the Tri-State Medical Society of the Carolinas and Virginia, at Columbia, S. C., February 21-22, 1912.

2. Extra-systoles. Here an auricular or ventricular systole, of both together, may start prematurely and independently of the sinus rhythm.

3. A nodal rhythm, where the starting point is no longer in the sinus node but lower down in the primitive tissue, and in most cases the auricle and ventricle contract simultaneously.

4. Irregularity due to failure of the conducting power of the primitive bundle—a complete or incomplete heart-block. This can occur not only from disease of the primitive bundle, but from the action of certain drugs of the digitalis group—digitalis, squills, apocynum and strophanthus.

5. A depression of contractility, usually called the *pulsus alternans*, the heart being regular in rhythm but the beats varying in strength.

A sixth form of irregularity, due to organic disease in the sinus node, is described by Draper and others under the name of *pulsus irregularis perpetuus*.

We will for a few moments consider the venous pulse before taking up the venous and arterial pulse in irregularities of the heart. The venous pulse is gotten by placing the receiver over the jugular bulb, which is situated one inch from the clavicle end of the sternum. The jugular pulse can be best shown by a tracing that I will now present to you by the lantern

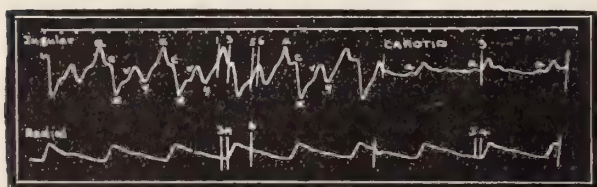


Fig. 2.—After MacKenzie.

slide (Figure 2), and we will note three important waves in this pulse and I will call your attention to the forces in the circulation producing these waves and depressions. "A" the auricular wave. This is produced in the jugular by the systole of the auricle; in other words the blood pressure is higher in the auricle than in the vein, sending a wave back to the jugular through the blood. When the pressure in the ventricle becomes higher than that in the auricle the valves between the auricles and ventricles are closed and the aortic valve opens and we have the second wave "C" of the venous

pulse. This is a carotid wave, an arterial wave, produced by the carotid beating by the side of the jugular vein. At this time occurs the first fall in the venous pulse that we mark "X." A third wave now shows itself in the venous pulse and occurs at the time that the auricle is filling with blood while the ventricle is in a state of contraction. The pressure of the ventricle against the filling auricle sends a wave through the auricle into the jugular. This wave, marked in the tracing the "V" wave, is followed by the second depression in the jugular pulse, marked "Y," and notes the opening of the tricuspid valves; in other words, at this point the auricle is about to again contract, the blood pressure being higher in the auricle than in the ventricle.

It is not always necessary to have the apex wave in reading the irregularities of the heart by the use of the polygraph, and I will, therefore, leave it out in our considerations to-day.

The sinus irregularity of pneumogastric origin is largely due to variations in the length of the diastolic period. The "A," "C," and "V" waves of the jugular are shown very well in the tracing that I present to you (Figure 3).

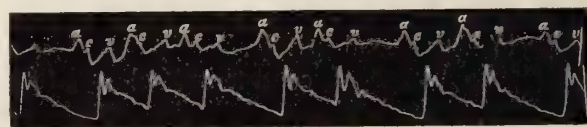


Fig. 3.—After MacKenzie.

In the organic changes occurring in the sinus node producing *pulsus irregularis perpetuus* we have no such clearly marked jugular pulse. I have an excellent tracing that shows this condition, but my jugular tracing is not quite as clear as the one given by Draper, and, therefore, the one that I now present to you (Figure 4)

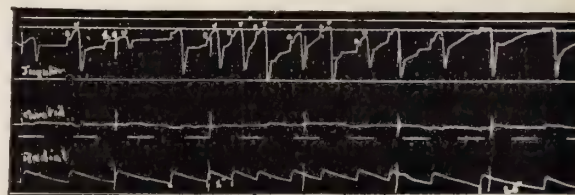


Fig. 4.—After Draper.

was taken from Draper's article published in the October, 1911, number of *Heart*, a journal for the study of the circulation.

I will next call your attention to the extra-

systole, which MacKenzie defines to be a premature contraction of auricle or ventricle in response to a stimulus from some abnormal point in the heart, but where otherwise the fundamental or sinus rhythm of the heart is maintained. The ventricular extra-systole is supposed to arise from the a.-v. bundle beyond the auricular ventricular node. If there is no change in the auricular rhythm, an extra "C" wave will occur in the jugular pulse at the same time that the extra "R" occurs in the radial pulse. The auricular extra-systole can be distinguished from the ventricular only by the polygraph.

When we find in reading the jugular tracings the carotid wave "C" is preceded by an auricular wave "A," (Figure 5) the only in-

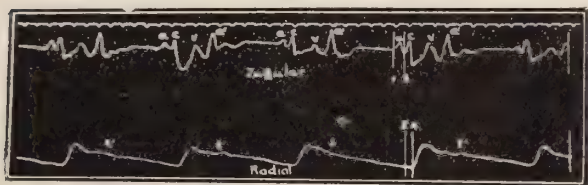


Fig. 5.—After MacKenzie.

ference that can be drawn is that "A" is due to an extra-systole of the auricle which is followed by an extra-systole of the ventricle, producing the carotid and radial beats "C" and "R."

We now have a third form of extra-systole arising in the auricular-ventricular node, nodal extra-systole, and tracings in this case show that the auricle and ventricle contract prematurely together, the auricular wave appearing in the venous pulse at the same time that the ventricular wave occurs in the radial pulse. I am sorry time does not permit me to show more tracings of the various forms of extra-systoles.

I cannot in this paper go more extensively into the forces producing extra-systoles. It is certainly one of the most complex subjects presented to the student of diseases of the heart, and in no condition of the heart do we have to be more careful to consider the a.-c. space in the jugular tracing than in the extra-systoles. I will call your attention more fully to this a.-c. space when we consider heart-block, but one point I would like to mention here: if the heart is beating rapidly and the a.-c. space continues to be one-fifth of a second, we may readily suppose that there is some disturbance in the a.-v. bundle, because usually with rapid heart action the a.-c. space is shortened; and, again, where the heart is slowly acting, but normal, the a.-c.

interval preserves a remarkable constancy. In extra-systole that quality of the heart muscle which we call conductivity must always be carefully looked after in reading our tracings. Extra-systoles can be often recognized by auscultation. The regular sequence of sounds is interrupted by two short, sharp sounds and this draws a marked distinction between those cases of extra-systole that very closely resemble heart-block, for in heart-block these two sharp sounds are wanting.

The prognosis in extra-systoles is a matter of great interest. In young and neurotic persons there seems to be no reason for alarm on account of extra-systoles though they often produce a very depressing mental effect upon the patient. Even in older persons where probably marked tissue changes have taken place in the primitive cardiac tissue, in chronic rheumatic cases, the sufferer from extra-systoles may live in great comfort for years.

The irregular pulse occurring after operations has never been sufficiently studied, nor the irregular pulse of brain lesions.

The next irregularity to which I wish to call your attention is heart-block, Adams-Stokes disease, or ventricular rhythm. This disease has been written upon very extensively in recent years, and in cases where there are marked clinical symptoms, such as periods of unconsciousness, epileptic convulsions, and other syndromes, I doubt not that the diagnosis can be made without the aid of the polygraph, but I do not believe that in many of these cases it is possible for the physician without the tracings of the radial and jugular pulse to feel certain that he has a case of heart-block. We know that the stimulus passing from the pacemaker of the heart to the ventricles is conducted along the primitive cardiac tissue, and it is the want of conductivity in this tissue that sometimes produces a partial heart-block which we call delayed transmission of the impulse. Second, the condition when the stimulus at times passes through the conducting tissue and at times is stopped, and, third, a condition where there is a complete block beyond the a.-v. node and the ventricle contracts in response to a stimulus that arises in the uninjured remains of the a.-v. bundle. Therefore, in studying this condition by means of the polygraph we have to keep all three of these conditions in mind. It would be impossible in the length of this paper to go

fully into the polygraph tracings in heart-block. I will, therefore, present for your consideration one tracing (Figure 6) showing a very simple

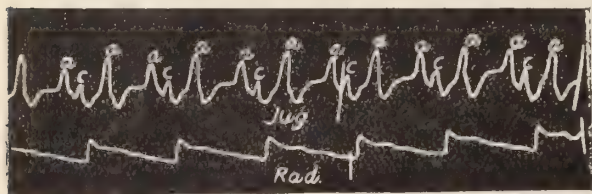


Fig. 6.—After MacKenzie.

form of heart-block in which there are two auricular beats to one radial. In this case the second auricular beat is followed by the carotid beat but there is some delay as the a.-c. space is wider than the usual one-fifth of a second. The other forms that present themselves are, one beat perfectly regular with the typical a.-c.-v. waves, followed by a block when the v. wave will disappear, and there may be one, two, or three "A" waves before a radial beat; and the condition where the transmission is delayed, and this we readily learn through the polygraph by measuring the a.-c. interval, which is usually one-fifth of a second. Heart-block always means that myocardial changes exist, and although the patient with mild forms of heart-block can live for many years in comfort, yet he can never be considered in a physically safe condition, and in all these cases the drugs of the digitalis group have to be given with the greatest care. I think it is probably for this reason that many physicians have written as a dictum that digitalis should not be given after 60 years of age. When we consider that most cases of heart-block occur after that age we can see why the careful physician, without exactly knowing the reason, has

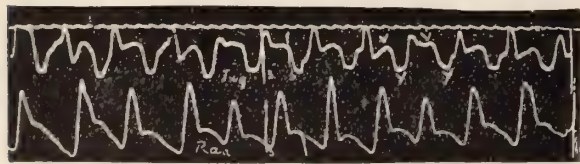


Fig. 7.—After MacKenzie.

from experience found that we have to use the digitalis group with care after the age of 60. I have no doubt that he has seen attacks of heart-block produced by moderate doses of digitalis. I have before mentioned that the digitalis group can produce heart-block even in normal hearts, and in hearts after 60 probably there

are changes in the primitive cardiac tissue that make this tissue exceedingly sensitive to the action of drugs of the digitalis group. High arterial pressure also demands care in the use of digitalis.

Nodal rhythm, as has been before stated, is an irregularity of the heart due to the contrac-

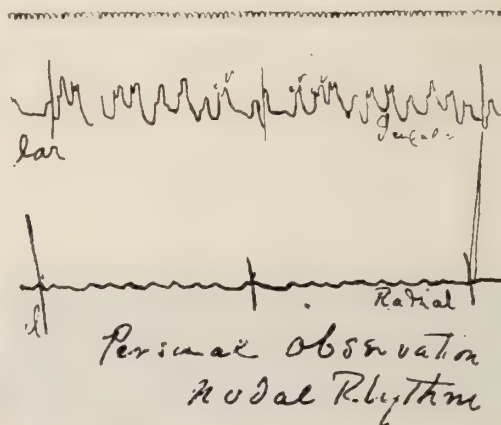


Fig 8

tion starting in other than the sinus node. The most marked clinical evidence of this irregularity is a complete disappearance of the auricular systole occurring at the normal period in the cardiac cycle. In nodal rhythm the venous pulse changes at once from what we term the auricular or normal venous pulse to the ventricular type, and it is due to the auricle and ventricle contracting simultaneously. The tracings (Figures 7, 8 and 9) that I shall show

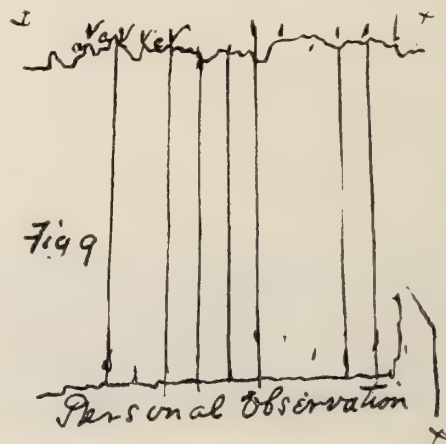
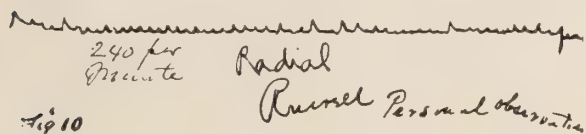


Fig 9

you will make this clear, if you will turn to the tracing of the normal jugular pulse and observe that the a. wave has entirely disappeared and that the c. wave is followed immediately by the v. wave, giving us what is properly

termed the ventricular form of jugular tracing. Nodal rhythm may continue over quite a long space of time, or the heart action may change rapidly from nodal rhythm to normal rhythm. I have seen this occur while I was making a tracing. Also in nodal rhythm there are extrasystoles, both of auricles and ventricles; in other words, as the contraction in nodal rhythm of the heart always starts from some point other than the physiological pacemaker of the heart, there may be almost any conceivable complex form of irregularities, both in the venous and the arterial pulse. We find in the rhythm both



tachycardia and bradycardia. Figure 10 shows tachycardia, in a patient with nodal rhythm.

I now call your attention to pulsus alternans, an irregularity due to more or less exhaustion of muscular contractility. I think it is this tracing (Figure 11) more than any other that

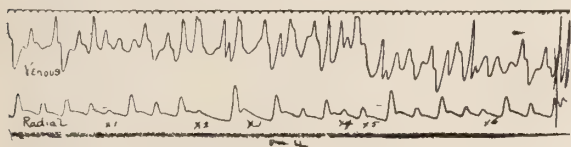


Fig. 11. A combination of extrasystoles and alternation; as a whole, the radial tracing bears a close resemblance to the curve of auricular fibrillation. The alternating beats succeeding the auricular extrasystole at X 1 are followed by a ventricular extrasystole at X 2, succeeding which there is a mixture of alternation and auricular extrasystoles which occur at X 3, X 4, X 5, and X 6.—From Windle in "Heart."

gives us our best idea of the reserve force of the heart, and it is in this condition that we have to be most careful in estimating the heart from the standpoint of prognosis. There are two ways that we can test the reserve force of the heart, using as an auxilliary aid our polygraphic tracings. One is the general comfort of the patient while he is lying in bed, his ability to sleep without any disturbance in circulation or respiration—the rest power of the heart, and, second, his ability to exercise without producing marked symptoms of cardiac exhaustion—the work power of the heart. After we have kept the patient quiet for two or three days and found him to be perfectly comfortable we should then take a polygraphic tracing and note carefully the force and character of the radial and jugular pulses. We should then gradually make our patient ex-

ercise and observe the first symptom of heart embarrassment, and then again take a polygraphic tracing. By this method I believe we can very accurately determine the possible outcome of the cardiac condition in the person. Of course the finger applied to the rapid pulse tells us of heart exhaustion, with other associate symptoms, enlarged liver, dyspnœa, and dropsy; but this cannot be as accurate as the polygraphic tracings showing one beat struggling up higher than another in nature's effort to stimulate the exhausted muscular force. In pulsus alternans we often find a paroxysmal tachycardia. Pulsus alternans must not be mistaken for what we commonly call pulsus bigeminus, which is caused by a smaller beat occurring prematurely in the radial tracing, indeed an extra-systole, which is due, as we know, to a premature contraction of the ventricle, while in true pulsus alternans the rhythm is quite regular.

I have briefly discussed the uses of the polygraph in irregularities of the heart, and while undoubtedly its greatest work will be along the line of irregularities, its usefulness also extends to a limited degree to the diagnosis of valvular diseases. In aortic regurgitation, instead of one notch on the catacrotic limb of the radial pulse we have another near the apex of the wave, while in aortic stenosis, instead of the perfectly smooth line of the ascending or anacrotic wave of the radial pulse we have a marked notch, and, as far as I am aware, there is no condition of the heart that gives this marked notch on the anacrotic wave other than aortic stenosis.

I will mention here a point of great diagnostic value in cases of aortic regurgitation, mitral incompetence, and stenosis. Hill and Rowlands, in the *Heart*, of February, 1912 give their observations in systolic blood pressure in aortic regurgitation, mitral incompetence, and stenosis. One cuff of the manometer was placed over the posterior tibial artery and the other over the radial at the wrist. In most cases where the radial blood pressure read 106 systolic pressure, the tibial pulse varied from 170 to 160 systolic pressure. In some of the cases of aortic and mitral incompetence, with arteriosclerosis of course, the radial blood pressure was often as high as 180 or 190, but in these cases the tibial was always over 200, and, generally, in the neighborhood of 225. The article by Hill and Rowlands on this subject is so inter-

esting and suggestive that I feel compelled to call attention to it. Many of my hearers will probably have the opportunity to read it themselves.

In angina pectoris there is certainly nothing characteristic about the waves to aid us in diagnosis, either in the radial pulse or in the jugular tracing. Those who are familiar with the reading of the sphygmograph are perfectly familiar with the very irregular pulse of the radial that occurs in angina pectoris. MacKenzie, Lewis, Cushny, Jolly, Ritchie, Hewlett, McIntosh, Cohn, Hirschfelder, and many others in the last two or three years have added vastly to our information concerning irregularities of the heart, and their work has been done either with the polygraph or the electro-cardiogram. This subject is certainly as difficult as it is interesting, and while its first importance is diagnosis, there naturally follows prognosis and the best treatment.

In treating diseases of the heart, of first importance is rest, next I would place feeding, though digitalis, which I place third, might be given the second place without great violation of judgment. Rest and digitalis we are all familiar with, and it would probably be interesting to state here that the whole number of "*Heart*," of August, 1911, was given to the consideration of digitalis, by James MacKenzie. MacKenzie stated that in his judgment a tincture made from the select English leaves, given in doses of 20 minims three or four times a day, is the preparation of digitalis to be preferred above all others, and that he has never seen any benefit following the use of any of the others of the digitalis group when digitalis itself had failed to act.

And now a few words about food. First, if the heart is exceedingly weak and laboring under its load, we should reduce all food as much as possible, particularly water, because in lessening the volume of blood we lessen the work of the heart, and another advantage in reducing the water is that we will often save our patients dropsy, because the kidneys are usually not properly performing their functions in diseases of the heart; therefore, they permit water to accumulate in the tissues and cavities of the body, producing a daily increase of weight, several weeks before we can observe dropsy either by the eye or by pressure. Weighing the patient each day and measuring the quantity of

fluid taken in, and then eliminated by the kidneys, skin, and lungs, will readily tell us why the weight is increasing. We know that in these cases one of the great causes of œdema is that the kidneys do not eliminate the chlorides, and the chlorides hold the water back in the tissues. Therefore, the next point I wish to make in feeding in heart diseases is the necessity of lowering the quantity of chloride of sodium in the food to the minimum of health. And now as regards other foods, carbohydrates, proteids and fats. The patient must be well fed as soon as the heart will permit, although we may have to give the food in small quantities and at short intervals. Many patients will fall far below a maintenance diet, and we will note vast improvement if with rest, we bring the food up to a maintenance quantity which in such cases is between 14 and 16 calories to the pound, of the normal weight.

1200 Massachusetts Avenue, N. W.

OBSERVATIONS ON INGUINAL HERNIA.

By L. SEXTON, B. S., M. D., New Orleans, La.

We can hardly imagine a more inconvenient existence than the truss life of the average hernia patient. This is not altogether the fault of the truss, but is due to the fact that many of the trusses are fitted by drug clerks, who have not the remotest idea of the adaptability of the truss to the hernia. I have seen a truss made for the left side worn out on a right-sided hernia. Even when trusses are properly fitted they are subject to the erosions from perspiration, and easily become rusty and soiled.

The man with a hernia is constantly handicapped when wearing a truss with a spring too stiff, and with pressure too great upon the inguinal canal. Many trusses tend to increase the very condition they are made to cure. We refer to the celluloid or hard rubber pad with a stiff steel spring that bores its way into the external ring, absorbing all the tissue, making the ring and canal more patulous, rendering the hernia larger and harder to retain after it has descended into the scrotum.

The web or elastic truss is insanitary, and cannot be too severely condemned on account of its absorption of odors and perspiration, and its inability in many instances to retain the hernia.

As said before, the fitting of trusses is too often

referred to the druggist or his clerk. In a great majority of cases many of these drug clerks, without previous training, or ever having seen a hernia, sell and pretend to fit trusses to the first patient who applies, and always the kind of truss which the drug store at that time happens to have in stock.

There is no more fertile field for the operation of quack medicine than in hernia cures and truss-selling advertisements found in magazines and newspapers. Many hernias are so large in laboring men that no kind of truss is sufficient to retain them. These hernias are liable to become strangulated or incarcerated in time, making a serious operation imperative, when a simple one in the beginning might have accomplished a radical cure.

It is much better for the young patients suffering from hernia to be operated upon by a competent surgeon under aseptic conditions rather than to live a long hernia life, worried at all times with the inconveniences of wearing a truss, yet so averse is the general public to any operative procedure that it frequently requires a family meeting before the consent of all to an operation can be obtained.

If the public could only know how few deaths result from herniotomy in properly selected cases when performed by a competent surgeon, and that relapses are the exception and not the rule, we would be able to accomplish much more in this line of surgery than we have ever been able to do in the past. This brings up the question of how many people have hernia. While statistics may vary, we may safely assume that one in twenty-five in the male and one in one hundred and fifty among the female patients is about correct. Bull and Coley found in 33,600 cases of inguinal hernia, male to female, six to one; femoral, male to female, one to two and fourteen hundredths. Of 22,751 cases 5,554 or 25 per cent. were in children under fourteen years, while 1,381, or 18 per cent., of femoral hernias occurred under fourteen. Generally speaking, the greater number of cases occur during the active period of life; that is, between fifteen and fifty years of age.

With such a percentage of curable cases by a simple operation, is it not a pity that this vast multitude of afflicted persons should be worried with wearing trusses of a thousand different makes and kinds during their life time?

The question often presents itself to the surgeon as to how early in the child's life may these operations be performed with safety, as it is known that a certain percentage of young people overcome this inherited weakened defect in the abdominal wall as they grow up. Another argument for deferring action is that children do not stand operations very well, and the tissue with which the hernial canal is to be closed is tender and cannot be manipulated with as little impunity as in older patients.

Diagnosis.—If from previous inflammation the omentum, mesentery, or intestines become attached to the hernial sac, or infection, or inflammatory conditions arise from a misfitting truss, such complications might in some instances be mistaken for enlarged and inflamed lymph glands in the inguinal region.

In complete scrotal hernia you may have to differentiate from hematocele or hydrocele, which is easily done by the introduction of a hypodermic needle or small aspirator. The cord is felt above the hydrocele at the external ring, but not so in hernia. Varicocele is usually on the left side, and may empty itself in the recumbent posture; the worm-like feeling of the veins can hardly be mistaken for hernia. Sarcoma and lipoma are very rarely found in the inguinal canal. Light is easily transmitted through hydrocele, while hernia is opaque. So it is to be seen that hernia, as a rule, is very easily diagnosed.

Predisposing Causes.—Anything that increases intra-abdominal pressure tends to produce hernia. Any opening through the abdominal walls, whether surgical, as in laparotomy, or natural, as the umbilicus, the round ligament, the cord, all leave areas of comparative weakness through which intra-abdominal pressure may force out pouches of peritoneum and later hernial contents. Weakened abdominal walls at these openings are inherited in one-third of all hernias. We have known a succession of hernias to occur in grandfather, father and son, so one-third of all hernias are hereditary from this lack of development of muscles around these natural openings in foetal life. A long omentum or mesentery is often the entering wedge to the formation of a hernia. The wearing of a truss with a hard pad, as in bubonocoele, enlarges the opening in the inguinal canal from pressure, thus actually predisposing to the formation of

hernia, which it is really intended to prevent; so if a truss life is imperative, the pad should always be of soft material.

In very many adipose subjects the fat cells develop between the muscle striæ, which is one of the reasons for hernia being so common in fleshy persons. Habitual constipation, gaseous indigestion, chronic bronchitis or whooping-cough, enlarged prostate, stricture and bladder stones, falling from a great distance, straining and lifting heavy weights, violent sneezing or coughing are among some of the most common predisposing causes. All heavy work, as in farm labor, running and jumping, as practiced by school boys, the blowing of wind instruments; in fact, as said before, anything increasing intra-abdominal pressure predisposes to the formation of hernia.

Strangulation.—It is when the hernial sac is large, the neck contracted, and a large loop of intestine descends into the sac, that this constriction takes place, the return flow of blood is obstructed in the bowel, œdema, and inflammation supervening, bringing about pressure which retards the return flow of blood, causing the strangulation, which, if not relieved under an anesthetic in the Trendelenburg position, necessitates an immediate operation. Nearly all hernias are reducible when they are just forming, and become incarcerated or impossible of reduction only after some inflammation or infection has taken place from bad-fitting truss or other cause, or after becoming strangulated. Very many apparently irreducible hernias may be returned to the abdomen by application of ice bags for a considerable time, followed by general anesthesia in the customary Trendelenburg position. As a matter of course, it is always best in these cases to operate. I am only speaking of this method of reduction of hernia when the patient will not submit to the radical operation under any circumstances.

Sac.—It is important to remember clinically that the posterior wall of some hernial sacs may be made up of the continuation of the bladder wall, cæcum, or sigmoid; so in opening the sac in the sliding variety of hernia, bear these organs in mind. Double sacs of peritoneum, like the hour glass sac, are rare in occurrence. The contents of the sac are more variable than the walls; for instance, the anterior wall of the bladder in obese and bulging cases is occasionally found in

the hernial sac, as is also the appendix, ovary and tubes; in fact, in many large neglected hernias any of the contents of the abdomen may be found in the unusually enlarged sacs. The sac descends behind the epigastric vessels in direct inguinal hernia. The cord may be found in front or to the side of the sac in direct hernia.

Nearly every successfully operated case brings another patient. Every unsuccessful infected or recurring hernia retards surgery in general and hernia operations in particular. Every recurring case is not necessarily a failure on the surgeon's part, but a neglect of the patient to avoid employment that predisposed to hernia in the first instance. Many abdominal walls are inherently weak about the inguinal canal. Usually after hernia operations it is best for the subject to follow some light work. This is particularly true of old and flabby patients.

As said before, where the hernia is complete and the inguinal ring so large that it cannot be retained by any ordinary truss, the surest cure for such a case is assured by castration, but it is necessary to get the patient's consent as a matter of course before he takes the anesthetic, provided it becomes necessary to go this far in order to insure no returns.

The best-fitting truss may retain the small and easily reducible hernias, so many patients prefer this plan to a more radical operation, but there is the constant risk of strangulation at some future time or place when proper surgical assistance is not obtainable. This is the fatal ending of many old hernia patients.

Obesity in subjects should be reduced by walking exercise, massage, and the simplest diet. For breakfast a small cup of tea, a tablespoonful of milk, one lump of sugar, a slice of toasted bread or cracker. Dinner, one slice of bread and cracker, small piece of lean meat or chicken, one egg and vegetable, salad or apple, glass of skimmed milk, sour wine or lemon water. Supper, one-fourth of small chicken, boiled or poached egg, slice of toasted bread or cracker; any seasonable fruit may be taken in moderation between these meals, but as little fluid as possible should be imbibed. This should preferably be light sour wine or lemon water. A very fat patient should walk from five to ten miles a day, varying the meals suggested above according to his own taste, but never drinking any liquids during meal time. Under this diet and exer-

cise the patient will lose from five to ten pounds per week. Cold or hot baths with friction rubs may be added to this regime. All adipose patients should undergo this reduction treatment until the abdominal walls are largely rid of fat, as our commonest failures and recurrences of hernia operations are in our obese patients. Constipation and gaseous indigestion, if present in any hernia case, should be corrected before any operation is undertaken. Always eliminate all predisposing causes of hernia before any radical cure is attempted.

In all cases of strangulated hernia make a radical cure operation unless infection or gangrene render drainage imperative. If heart or kidney complications render general anesthesia inadvisable, local analgesia or spinal puncture may be admissible in specially adapted cases. However, nearly all operable cases can safely take ether. Special preparation of the patient by abstaining from food, and having the bowels properly emptied and the operative field aseptically prepared so that infection and vomiting is improbable makes the prospect of a radical cure much better than when any of these details are neglected.

With describing any particular operation for hernia with which all are familiar, we will simply remark in passing that after the usual three-inch incision is made over the hernial tumor and extended down to the sac, the fat is best gotten rid of by a finger dissection with damp gauze.

The sac is usually found just above the cord and should be separated from it by a gauze or blunt dissection without injury to the spermatic cord and with little trauma to the soft parts. The lower end of the sac is held up and opened. Any intestines confined in the sac are pushed back, while omentum, if found, is cut away, after being transfixed and ligatured. The sac is then followed up into the abdominal cavity, securely tied with a double cat-gut ligature; after the distal end has been cut away, the stump is dropped back into the abdomen.

That neglect of any of these simple details is the cause of recurrence is the only excuse for mentioning them. The transversalis and internal oblique muscles are then sewed to the ledge of Poupart's ligament by four interrupted kangaroo tendon, or cat-gut sutures.

The epigastric vessels are avoided by inserting the needle from within outwards through Pou-

part's ligament. The edges of the wound should be closely approximated by careful suturing on Mischell clamps. The wound may be either hermetically sealed with a collodion and cotton dressing, or with a large pad of sterile gauze around which a figure-of-eight bandage is so placed as to exclude the possibility of any infection after the operation is finished.

As to the mode or plan of operation, we usually prefer the Bassini, as it transplants the cord, which is really the guide to the hernial sac from the inguinal canal to a new position under the external abdominal oblique muscle, leaving less probability of recurrence than in some of the other more complicated operations. The Bassini is easy to perform by lifting the cord out of the way after it is separated from the sac by a soft piece of gauze being placed under it, and, in order to snugly close the internal ring, putting two sutures of kangaroo tendon or cat-gut above the cord and three or four interrupted sutures underneath it will render the likelihood of a recurrence very remote.

The cord is thus transplanted to a new bed just under the external abdominal muscle. Many surgeons are just as successful with Ferguson's or Andrew's operation, which has the advantage of being easier to perform, disturbing the cord less and not so likely to be followed by atrophy of the cord or testicle.

Either one of these procedures is about equally effective in bringing about a cure, which in the great majority of cases is permanent, provided no great intra-abdominal pressure or heavy work is attempted by the patient in the near future. Some complete hernias are so large (remaining in the scrotum) that it is impossible to hold them up by any ordinary truss. To this class of patients a successful operation is a great boon. But in order to make a radical cure in some of these cases it may be necessary to perform a castration in order to make the operation truly successful, and to prevent any likelihood of a recurrence.

There is no class of surgical work that requires asepsis more than hernia operations. The final success with no recurrences depends upon the operation being properly performed, and the wound not becoming infected. The operation should be done with gloves and with as little bruising and handling of the tissue as possible, with every other known aseptic precaution both before and during the operation.

Following out the operative suggestions just made, we have had a succession of twenty cases, all resulting favorably. Some have remained cured for ten years, though doing hard farm labor. We had one infection in which a second operation was necessary in order to make the cure perfect. There has been no mortality in these few cases, nor have we heard of anyone dying after operation for hernia during the past ten years, though the operation is daily performed in the hospitals and sanitariums located in New Orleans.

124 *Baronne Street.*

SURGICAL SHOCK.*

By L. H. REICHELDERFER, M. D., Washington, D. C.

Professor of Clinical Surgery, George Washington University; Visiting Surgeon, Garfield Memorial Hospital, and The Tuberculosis Hospital.

Although the clinical state known as shock has been recognized a long time, and its frequency and gravity fully appreciated, it is only recently that any exact views on the subject have been put forth; as Warren says, "The condition had been regarded as a general depression of the nervous system without any well-defined idea as to what the nature of the change was." It is of interest to note, however, that the views regarding shock which are most commonly accepted today differ very little from opinions published nearly fifty years ago. In 1864, W. W. Keen, Weir Mitchell and G. R. Morehouse put forward practically the same theory as that recently advanced by Dr. Crile, namely, that shock is due to vaso-motor exhaustion. At the present time it is impossible to satisfactorily define shock chiefly because its exact physiology has not been worked out, and, as Bloodgood says, the whole question is one of "Surgical Physiology."

Until recently, pathological studies threw little light on the question for in man and animals after death from shock the gross and microscopic findings described were practically nothing, except that the blood is found accumulated chiefly in the veins, especially of the splanchnic system. Crile and Dolley have published some convincing animal experiments relating to the pathology of shock. They have shown that certain constant and definite degenerative changes occur in the Purkinje cells of the cerebellum as the result of surgical manipulation and that these changes to a lesser extent follow fear, or "psychic shock," independent of body lesions. They have also demonstrated that by cocainizing the large nerve trunks leading from operative areas the afferent impulses tending to exhaust the nervous centers are cut off and the cellular degenerative changes in the central nervous system are in large part, averted.

For practical purposes we may consider shock a condition of general depression brought about by various factors acting through the medium of the afferent nerves upon the centers of the cord and brain, especially the vaso-motor centers. Crile's theory is that by the over-stimulation of sensory nerves, violent impressions are conveyed to the nerve centers, the vaso-motor centers are exhausted or inhibited, vaso-constrictor power is lost, the arteries and capillaries are depleted or nearly emptied of blood, which is largely transferred to the veins, especially of the abdomen. In other words, there is a deficiency of circulating blood and the vital centers suffer from the anæmia.

The term collapse is often very loosely used as synonymous with shock, but it is generally stated that collapse is a sudden depression of the vital functions due primarily to cardiac failure rather than to vaso-motor exhaustion. As a matter of fact the two conditions are, no doubt, often coincident and scarcely to be distinguished. There are, however, several theories advanced to account for the production of shock; the two most quoted being, first, Crile's theory of vaso-motor exhaustion and second the theory that shock is due to a primary cardiac failure. Crile's theory is the generally accepted one; he has the backing of much careful experimental work of which one of the most suggestive findings is that by cutting off the afferent sensory impulses by cocainizing nerve trunks, the vaso-motor and blood pressure changes may be averted. This single fact, it would seem, goes far to prove the accuracy of Crile's theory on the subject. However much theories may differ, one feature is common to all of them—namely, the fall in blood pressure which is always present in shock. This symptom is the keystone of the whole question and is the one thing we consider most in our diagnosis and treatment. It is not believed that the cardiac mechanism is directly affected.

*Read before the Clinical Society, Washington, D. C., December 11, 1911.

The rapid action of the heart is due to lack of fluid on which to contract and to its efforts to maintain the falling pressure and supply the vital centers. The blood remains in the veins and does not enter the heart, which has little fluid on which to contract and hence drives little into the arteries. The weakness of the pulse is due simply to the small amount of blood in the arteries. That the rapidity of cardiac action is due to these causes is indicated by the rapid improvement following transfusion, when the heart beat becomes slow, full and strong. Death may be considered as largely due to an internal hemorrhage into the large venous trunks and the resulting anæmia of the medullary centers.

Etiology of Surgical Shock.—Many causes, or factors, enter into the production of shock in surgical practice and will be only briefly mentioned here.

The most important, of course, is hemorrhage, especially when sudden and profuse; a long bloodless operation is less serious than a short bloody one.

Shock is more severe in elderly persons, in women than in men, in the nervous and sanguine types and in those weakened by illness or suffering. Prolonged operations with general anæsthesia are dangerous; the improper choice or faulty administration of an anæsthetic is probably one of the most important of all causes; undue exposure of the body and viscera to cold; constitutional conditions, such as anæmia, diabetes, nephritis, alcoholism, and general or local infections.

To my mind the patient's mental attitude toward the operation has much to do with shock; anxiety and fright certainly predispose to a condition of psychic shock which may exert a most unfavorable influence on the patient. While a hospital interne, I saw a young woman die from typical shock following simple curettage, the post-mortem showing no complication or adequate cause of death; this woman was exceedingly nervous and badly frightened, insisting she would not survive, etc. After recovery from the anæsthetic, she became hysterical, passed quickly into a condition of shock in which she died. I saw a statement recently that it has been observed that children and the insane are less susceptible to shock because of the absence of pre-operative anxiety and fear. Crile's ex-

periments have shown that degenerative changes are to be found in the cerebellar cells of animals badly frightened, the alterations being similar to the cell degenerations following surgical shock. The prolonged pain and anxiety of a cocaine operation may induce a condition of psychic shock more harmful and unpleasant than the after-effects of well-given ether.

Too much blunt dissection and rough handling of tissues especially in regions rich in sensory nerves, such as the brain, neck, scrotum and testicles, arms, large areas of skin, etc., are more liable to produce shock, while certain structures, such as bone or muscle may be handled without much risk.

Symptoms of Shock.—The symptoms of shock are those of general depression; extreme degrees of shock are easy to appreciate while moderate degrees and predisposing conditions are not so readily determined. There is sub-normal temperature; irregular, weak, rapid pulse of low pressure; cold, pallid, clammy skin; shallow irregular respiration; the patient is usually conscious but apathetic; sensation is impaired and pain but little appreciated; pupils are usually large and sluggish; there may be vomiting and relaxation of the sphincters and suppression of urine.

Concealed hemorrhage is difficult to differentiate from shock and as a matter of fact they are often associated. However, in hemorrhage we are more apt to have dimmed vision, restlessness, yawning, great thirst, and attacks of syncope. In shock the hemoglobin is not altered, while in hemorrhage it is greatly reduced. Also in hemorrhage there may be the physical signs of accumulating blood.

The Prevention of Shock.—There are many things which can be done before and during an operation which in doubtful cases will tend to lessen shock, and some of these I am afraid we are apt to neglect at times, in carrying out an accustomed routine. Where there is sufficient time, a patient, more especially if advanced in years, should be carefully examined in regard to his vital functions. The urine should be carefully examined, especially to determine the output of urea; a low urea finding, I think of much more importance than a moderate amount of albumen and casts in pointing to possible shock during or especially after an operation. Rountree and Geraghty have recently perfected an easy and accurate method of determining the

phenolsulphonephthalein output of the kidneys and expressing in percentage of the normal the functional capacity of the kidneys in a suspected case. This test has been found so accurate and so useful that in many clinics it is now a part of the routine; it certainly should be used in doubtful cases, as the question of kidney function is all-important in serious operative procedures.

Doubtful cases should not be purged or starved unnecessarily prior to operating, but I think there is less tendency to this now than formerly. It may be advisable to have the patient rest in bed for a period before operating, and I think it important to secure a good night's rest, by mild hypnotics, if necessary, in nervous cases. It is probably better to operate as early in the day as possible to minimize the psychic depression of a long wait for the ordeal. Of course in the run of work this probably does not make much difference, but it is in the doubtful case that we should consider the time best suited to the patient rather than to the surgeon. The choice of the anæsthetic is of course very important but, I think, often not so important as the choice of the anæsthetist. In many conditions it will be necessary to depend upon local anæsthesia, but I think we should remember the danger and discomfort of a general anæsthetic quickly and skilfully given may be less than a prolonged, painful attempt under local anæsthesia which may leave a patient depressed and hysterical for days. I, myself, believe that the skilled anæsthetist, a product of comparatively recent years, has so reduced the danger and unpleasantness of general anæsthesia as to decidedly lessen the field of local anæsthesia advocated by some so enthusiastically a few years ago. With scopolamine, morphine or spinal anæsthesia, I have had no experience, but reports on them are by no means unanimously favorable. A recent important advance in anæsthesia is the use of nitrous oxide and oxygen, especially adapted to short operations, though I have used this anæsthetic for an hour or an hour and a half with the most pleasant and satisfactory results. This form of anæsthesia has grown rapidly in favor and has come to stay.

There is often a delay between the completion of etherization and the beginning of the operation proper. In doubtful cases considerable time may be saved by taking the patient directly

to the operating room and giving the anæsthetic on the table. In this way, all preparation of the field may be done while the anæsthetic is being given so that the incision may be made at the earliest possible moment. The patient's body should be kept as dry and warm as possible. I think one of the strongest points in favor of iodine preparation is that it is not necessary to deluge the patient and table with antiseptics which necessarily lead to surface chilling. This, together with the dry operating now largely used, should make surface chilling unnecessary. The patient should be quickly removed to his room and carefully watched. I think all serious operative cases (certainly all laparotomies) should have a "special" nurse for twenty-four to forty-eight hours; much depends on constant and skilful care during this critical period. In doubtful cases, especially where the kidneys are in question, a pint of salt solution should be given by rectum as soon as the patient is put to bed; in most cases hypodermoclysis may be avoided by rectal administration of the solution. Doubtful cases should have water and small quantities of hot liquid food by mouth and much sooner than the average case. The use of stimulation prior to operation is questionable; the onset of shock may be masked and if it occurs there is little to fall back upon. The hypodermic of morphine prior to the anæsthetic I think is good practice especially in nervous or restless patients. No unnecessary time should be taken in operating. Tissues and viscera should be handled as little as possible and clean incision is less shocking than blunt dissection. Large nerve trunks should be cocaineized if they can be readily found. And, probably, most important of all, the arrest of bleeding should be as prompt and effective as possible.

The question of operating on a case suffering from traumatic shock sometimes presents itself, as, for instance, the question of amputating crushed limbs, etc. The usual rule is to wait for reaction, but in cases of shock complicated with hemorrhage or unusually severe pain, the risk of a hurried operation must be taken as either hemorrhage or intractable pain will prevent reaction.

Treatment of Shock.—Raise the feet and lower the head of the patient unless this causes undue cyanosis. Wrap the patient in hot blankets and cautiously apply protected hot

water bottles. It seems to be the opinion of practically all authorities that salt solution is indicated in shock whether associated with hemorrhage or not. Crile's experiments seem to show that the subcutaneous or intravenous administration of salt solution has no great value except in cases with hemorrhage, but as practically all cases of shock have lost more or less blood, it may be conceded, I think, that salt solution nearly always is indicated. I do not believe it will do harm unless given in too large quantities. The urgency of the case will govern the method of administration, whether by rectum, under the skin, or into a vein. If given into a vein, it should be administered slowly and probably not over about 750 c.c. at a time, as too much may cause cardiac dilatation.

Crile's experiments and theories have rather altered former accepted modes of treatment; for instance it would seem that the ordinary cardiac stimulants, such as strychnia or digitalis, are not applicable to the treatment of shock due to vaso-motor exhaustion, while, on the contrary, they are of value in collapse due to primary cardiac failure. Crile recommends adrenalin chloride of a strength of 15 to 60 drops of the commercial 1 to 1,000 solution to 1,000 cc. of salt solution, and advises not to give over 500 cc. into a vein at a time and slowly, observing the effect on blood pressure. Crile maintains that the only way to increase and sustain the blood pressure when the vaso-motor center is exhausted is to create a peripheral resistance either by a drug acting on the blood vessels themselves or by mechanical pressure. (In the way of mechanical pressure we have the bandaging of the extremities or the use of Crile's pneumatic suit, etc.)

If the patient is conscious and restless, small doses of morphine are of advantage. Most agree that atropine may be given. I always use oxygen and am sure it does good, especially in shock on the operating table. The recently perfected pulmotor apparatus so effective in mine-rescue work, drowning, gas poisoning, etc., would no doubt be valuable in desperate cases of shock in the operating room.

The question of blood transfusion naturally occurs; its only application would be in cases with profuse hemorrhage, and my impression is, that of late the reports are not enthusiastic. As an emergency procedure, without a preliminary study of the two bloods concerned, I am inclined

to think it questionable and that dependence on saline solution is safer and as effective. After all, this is one of the many conditions where prophylaxis is of the prime importance and advances, no doubt, will be along that line rather than in curative methods.

1721 *Connecticut Avenue, N. W.*

SOME POST-PUERPERAL CONDITIONS SIMULATING PUERPERAL FEVER. *

By GREER BAUGHMAN, M. D., Richmond, Va.
Professor of Pathology, Histology and Bacteriology,
Medical College of Virginia; Pathologist to the Memorial Hospital; Member Southern Surgical
and Gynecological Association; Vice-President
Medical Society of Virginia, 1905.

There is no condition that confronts the obstetrician that is so unnerving as that of puerperal fever. We feel a personal responsibility in these cases and, however much we may suspect that the nurse has infected our case, we can not relieve ourselves of the fear that it is due to our own negligence or carelessness. The responsibility of causing puerperal sepsis has been so real to me that for many years I have abstained from internal examination before, during, and after delivery, except in those cases where it has been absolutely necessary. A pair of well-trained hands, arms and ears are sufficient to make an accurate diagnosis of position and usually the size of the os by external examination.

In spite of the most careful handling of cases, sepsis does sometimes creep in. If we exclude infection by nurses with dirty pads, douches, etc., we are bound to believe that a small per cent. of these cases are infected metastatically from the blood of the puerperal woman.

Nicholson and Evans have shown that the puerperal lochia is sterile throughout the puerperium. Jochmann goes further and states that both vaginal discharge and colostrum contain large amounts of leucocyte ferments; they also contain a bactericidal substance which kills bacteria incorporated by phagocytosis and also digests bacteria. He believes that the action of the albumen in the uterus may account for some fever that follows a sterile delivery.

The cases I am about to report illustrate how pathological conditions may occur in the woman during the puerperal period that will give rise to chills, fever and symptoms simulating puerperal sepsis.

*Read before Richmond Academy of Medicine and Surgery, February 27, 1912.

Case No. 1.—Mrs. M. Aged 34. Three living children, four miscarriages. The last miscarriage, July 31st, of a four month foetus. She has been under my care about three years, during which time she has had two abortions and has been delivered of one living child. She has had frequent attacks of severe abdominal pain, so severe that on four occasions hypodermics of morphia had to be administered. To account for her severe abdominal pains and constant discomfort in the right iliac region, I found relaxed abdominal muscles, uterine subinvolution, with a slight unilateral cervical tear, chronic appendicitis with possible adhesions to the right ovary, visceroptosis.

She was directed to take exercise to strengthen her abdominal muscles. A properly adjusted abdominal supporter was recommended. She was given a diet finely divided. The acute abdominal signs subsided, but she still was conscious of her right iliac region.

During her last pregnancy she was fairly free from abdominal symptoms, except a very persistent nausea. She was delivered on October 19, 1911, of a 9½ pound girl in the second vertex position without forceps and without internal examination. The shoulders were difficult to deliver, taking at least two minutes; during that process the finger was introduced into the vagina. She made an uneventful recovery until the evening of October 25th, when she had a chill, followed by a fever of 101. At that time a differential white count was made:

| | |
|---------------|------|
| Poly. | 76.1 |
| Large M. | 16 |
| Lymph. | 7.9 |

She was very apprehensive and so was I until I had made the blood count. The next morning her temperature was 99. She was feeling much better. I kept her in bed for two weeks from the time of her delivery. On November 11, 1911, she went out contrary to my orders. That evening she had an acute attack of abdominal pain without chill or fever. So violent was the pain that I was compelled to give her morphia to relieve her. The differential white count at that time was:

| | |
|---------------|-----|
| Poly. | 84. |
| Large M. | 12. |
| Lymph. | 4. |

A surgeon was called in consultation, and it was decided that she should be operated upon, the idea being that she had an attack of appen-

ditis. Upon opening the abdomen, and after inspection, it was found that there was no adhesion in the abdominal cavity; the gall-bladder was clear of stones, and kidneys were slightly more movable than normal, particularly the right; the transverse colon was low. The pelvis was clean, with no sign of inflammation, either in the pelvis, tubes or ovary. The uterus was fairly well sub-involuted for an uterus a month after delivery. The appendix was not markedly inflamed, though it was removed.

The microscopic appearance of the appendix showed a slight round celled infiltration under the mucosa. The patient made a good recovery from the operation, but after leaving the hospital had two distinct attacks, similar to the one for which she was operated upon.

Since applying a properly adjusted adhesive support to the abdomen she has had no abdominal symptoms.

Diagnosis.—Visceroptosis.

Case No. 2.—Mrs. G. Age 24. Third baby. On November 14th I had a hurried call. This lady, who was seven months pregnant, complained of severe pains in the abdomen and thought she was about to be a mother. I examined the uterus externally, and found no signs of contraction during the time of the pain. I concluded that she was suffering from a violent attack of intestinal indigestion. The next day she was better. I was called again on the night of December 11, when I found her in labor, and delivered her eight hours afterwards of a 7½ pound girl, first vertex position. One internal examination was made with sterile gloves. She had a delivery, without instruments, of a living eight months baby.

I was compelled to leave town the next morning for four days, and turned her over to one of my colleagues, who reported that her condition was perfectly normal during my absence. She had no disturbance at all, except her bowels were difficult to move.

During the night of December 20th, nine days after delivery, she had violent abdominal pains to come on suddenly. The pains were so severe that I was compelled to give her a hypodermic of morphia. She told me that the pain was preceded by chilly feelings. Her temperature was 100. Differential white count:

| | |
|---------------|------|
| Poly. | 55. |
| Large M. | 37.6 |
| Lymph. | 7.4 |

Her flow had stopped the day before. The uterus could just be felt behind the symphysis. The next day she was feeling much better, with a normal temperature, but still had a general tenderness and soreness over the whole abdomen. This abdominal discomfort disappeared very much after the use of repeated high enemas. A good many hard masses were washed from the colon. I kept her in an erect position upon a bed-rest until two weeks after delivery, when she was allowed to get up.

On January 1st, she had violent abdominal pains, which she referred to the umbilical and epigastric regions. During this attack I was compelled to administer morphia, but found that after repeated high enemas, followed by the expulsion of hard scybalae, she was relieved.

On January 8th, she had another similar attack, but milder; on the 13th yet another attack, but of greater severity. On the 14th I was able to get a 24-hour sample of urine free from blood. Examination showed specific gravity 1008; no albumen; no sugar; trace of bile; no indican; no casts or crystals.

The pelvic examination showed absence of any inflammatory signs in the pelvis; uterus sub-involuted; relaxed abdominal walls; right kidney very distinctly palpable. A properly adjusted adhesive plaster was put on, and she has had no trouble since.

Diagnosis.—Visceroptosis with possible gall-stones.

Case No. 3.—Mrs. K. Primipara. Delivered on February 2, 1911, of an 8 $\frac{3}{4}$ pound boy, first vertex position. She was delivered without instruments; without internal examination; without tear. Her lying-in period was attended by abdominal distention with gas; pain very constant in left thigh, extending down, as well as up, from the left groin. She was kept in bed for two weeks. On the sixteenth day after delivery she had a slight chill, followed by a temperature of 101, with increased pain radiating from the right groin up and down her leg. There was no swelling in either leg. Differential white count:

| | |
|---------------|------|
| Poly. | 80.4 |
| Large M. | 7.4 |
| Lymph. | 12.2 |

Her temperature subsided after the third day. Urine was acid, and showed a few pus cells. Pelvic examination showed normally in-

voluted uterus; tubes and ovaries normal; no signs of adhesions.

Her recovery was slow; several times during the past year she has had pains radiating down her left leg.

On January 24, 1912, she still had an acid urine with a few pus cells.

Diagnosis.—Pyelitis.

Case No. 4.—Mrs. B. Primipara. Delivered of a 6 $\frac{1}{2}$ pound girl on May 13, 1906. No instruments, no internal examination; a tear was sewed up with three stitches. Uneventful post-parturient period until the tenth day, when the flow stopped. She had a chill with temperature 102. Differential white count:

| | |
|---------------|-----|
| Poly. | 75. |
| Large M. | 9. |
| Lymph. | 16. |

A pelvic examination showed sub-involuted uterus, no inflamed masses, no adhesions. The uterus was emptied of foul smelling clot, and douched. The next day temperature was normal, patient feeling very well. She made an uneventful recovery.

Two years afterwards, in February, 1908, she was operated upon for a gangrenous appendix. At that time, an inspection was made of the pelvic cavity and it was found to be perfectly normal. She had had several attacks of appendicitis after her first delivery, and I do not doubt that the inflamed appendix had something to do with her post-parturient chill and fever.

Diagnosis.—Sapremia and appendicitis.

Case No. 5.—Mrs. T. Age 25. Second child. This case was brought, while in active labor, six miles to the hospital, where she was delivered two hours after her arrival of an 8 pound girl, first vertex position. No instruments, no internal examination, no tear. On the evening of the fourth day, with no previous rise, she had a temperature of 102, no chill. She had been draining very poorly. An examination showed a sub-involuted uterus, no adhesions, no inflammatory masses. Differential white count:

| | |
|---------------|------|
| Poly. | 70. |
| Lymph. | 15.7 |
| Large M. | 14.3 |

With hot douches her temperature came down to normal, and she was feeling perfectly well. She was kept upon a bed-rest.

Diagnosis.—Sapremia.

Case No. 6.—Mrs. B. Age 28. Primipara. Began five months before delivery to suffer with pyelitis of both kidneys. An examination of the urine showed bacillus coli communis. Although she was very seriously ill with the first attack of pyelitis, it was determined, after a consultation, that she could be left to go the full term. She was delivered February 15th of a 7 pound girl. For several weeks before delivery she had been averaging 101 as an afternoon temperature. Her temperature had been at least 100 once a day from the time of the beginning of the pyelitis. On the afternoon of the second day it rose to 100.8; on the afternoon of the third day, 100; afternoon of the fourth day, 99.2; afternoon of the fifth day, 99; during the sixth day, 98.9. Temperature has been normal since.

No vaginal examination was made in this case.

Diagnosis.—Pyelitis complicating pregnancy.

These cases have been selected because they illustrate the three conditions that in my experience have been the most common ones causing symptoms simulating puerperal sepsis.

In the series of cases, two followed ptosis; in two the symptoms were due to pyelitis; in one to sapremia alone; and in one sapremia and appendicitis.

My idea of the reason for the symptoms in the cases of ptosis is, that during the time when the uterus is enlarged, not only are the abdominal viscera raised and put back approximately into place, but the intra-abdominal pressure is increased by the size of the uterus. We usually find in those cases of enteroptosis that have been giving symptoms before pregnancy, the symptoms clear up during pregnancy. Particularly is it true of constipation. As soon as the uterus has emptied its contents, the viscera descend. The stretched abdominal walls after a vigorous labor are thoroughly tired and relaxed. The intestines, having been squeezed by the diaphragm and abdominal muscles against the uterus in the effort that these muscles make to expel the infant, are practically paralyzed. This condition of intestinal paralysis—probably better intestinal relaxation—allows the passage from the intestinal wall of some of the many bacteria that inhabit the intestinal canal, and, further, the relaxed intestinal muscles allow detritus to accumulate. The pain in both of the cases of

ptosis is evidently due to an attempt on the part of the intestines to pass on scybalae accumulated during intestinal inactivity.

The colon bacillus is usually the bacteria that is found in pyelitis of pregnancy. The method of infection is probably metastatic: that is, the bacteria are absorbed through the portion of the intestinal track that has been relaxed, into the capillaries of the blood or lymph; then is carried to the kidneys, because they are the greatest excretory organs of the body.

The two cases of sapremia were due probably to faulty drainage of the uterus.

I do not worry about membranes or placental parts that have been retained in the urine cavity. I always examine the placental and membranes to see whether any portion has remained behind. If I find a piece lacking I make note of it so that the nurse can take special precautions. The first precaution is to elevate the uterus by placing an abdominal pad behind it so as to lift the fundus upward and forward. The second is to put the women early on a bed-rest or let them lie upon many bolsters and pillows, so that they can have a better mechanical drainage of the uterus. Sometimes it is necessary to bring the cervix into view and very gently remove the offending placental tissue or clot. Vaginal douches are also useful in washing away detritus and helping the uterus to contract.

26 North Laurel Street.

THE NERVOUS MANIFESTATIONS OF PELVIC DISEASE.*

By WM. H. SMITH, M. D., Goldsboro, N. C.

In the course of four years practice in the country, where chronic pelvic disease was rife, I was astounded to see the different manifestations by the nervous system and, in searching for literature on the subject, I was surprised that so little had been written on this everyday subject. I therefore selected this subject for a paper with a hope that it would provoke discussion and enlighten us as to their nature, cause and treatment.

To the physician who sees many cases of pelvic disease there are times when he is puzzled as to whether the patient is afflicted with some other disease or whether the pelvic condi-

*Read before the N. C. Medical Society, at Hendersonville, N. C., June, 1912.

tion is the sole trouble—as witness this *bizarre* group of nervous phenomena as reported by Vidoni. His patient at the menstrual period was attacked frequently as follows: loss of consciousness, sterterous breathing and signs of acute edema of the lungs. After twenty minutes the seizure subsided with the expectoration of large quantities of blood-stained serous sputum and with the patient delirious. The delirium subsided usually in twenty-four hours and the patient was well but weak. This, Vidoni cites as a case of pelvic visceral epilepsy, and says that it occurs and that it is analagous to epilepsy of psychic origin.

In considering the manifestations of pelvic diseases, one is struck with the predilection that pelvic disease has for the nervous system. Another case in which an unusual manifestation occurred was observed personally. The patient, during the two years observation, twice suffered a seemingly partial hemiplegia. It was accompanied both times by an increase of pain and tenderness in the iliac fossa of the same side which was the seat of a chronic pelvic condition.

Probably the most constant nervous manifestation of pelvic disease is pain, and it is the one that brings the vast majority of sufferers to the physician. It is usually situated in the ovarian regions but may be referred to the knee from involvement of the anterior crural nerve, or it may be down the anterior aspect of the thighs; again it may be referred along the course of any of the nerves that lie in the pelvis. Among the more distantly situated organs or portions of the body where pain from pelvic disease is felt may be mentioned the occiput and vertex of the head, also the breasts, the latter being the site usually selected by pains that are felt at the menstrual period. Backache is of constant occurrence with retro-displacements and also frequently of other disorders. Pain itself in chronic pelvic disease has very little place in diagnostic consideration, unless one of the contiguous nerves is involved and even then it is difficult to locate the lesion; sometimes the character and situation is the same for different disorders. Among the acute inflammations pain is of real value diagnostically, its character and situation oftentimes aiding in the localization of and determining the lesion.

The other nervous phenomena of chronic pelvic disease are manifold and also diag-

nostically useless. Some of the more unusual ones are asthma, which occurs usually at the menstrual period, and, if long continued, it may develop into true asthma and become permanent. Another respiratory affection, but of less frequent occurrence, is coryza. Vertigo, with and without scotoma, is also sometimes seen. Nausea and vomiting are of less frequent occurrence, but have more diagnostic value as being indicative of ovarian disease. Paralysis of the nerves supplying the thighs and legs is usually seen in subjects suffering from tumors and are due to the pressure. Paræsthesia usually accompanies or precedes the paralysis. The nerve involvement may also be due to the nerves being included in the inflammatory condition, but involvement of these nerves, especially the anterior crural, usually causes referred pains in the knee, as has been mentioned. Of unusual occurrence are the hysterical joints that sometimes accompany pelvic trouble.

As a guide in diagnosis of this condition, Sir James Paget says, "A joint that is cold by day and hot by night is not an inflamed joint." Reflex digestive disturbances having their origin in pelvic disease are among the most frequent reflex nervous manifestations seen. They may be of the gastric type, or of the intestinal type; when of the latter type it frequently leads to a state of intestinal toxemia. A very interesting gastro-intestinal condition is the hysterical affection of wind sucking.

At this point it will not be amiss to caution the profession against mistaking pellagra with gynecological involvement for a case of primary gynecological disease attended with gastro-intestinal and nervous disturbances. Patients have been operated on for gynecological disease when the gynecological disease was only a part of the pellagrous affection. Pellagra in females frequently causes pelvic disease. These cases are conducive to post-operative insanity. They are separate and distinct conditions but at times closely resemble each other in the symptom-complex. For further information showing the close relationship of these conditions, see Dr. Guerry's paper read before the Southern Surgical and Gynecological Congress in 1909. Other hysterical affections are frequently seen, especially in cases that have an unstable nervous system.

Besides hysteria, neurasthenia and the graver forms of mental disease need to be considered

very thoroughly in the treatment of pelvic lesions. In fact, all nervous manifestations should be considered more thoroughly than they are. General practitioners in dealing with this class of cases usually consider the pelvic condition as the chief malady and pay little or no attention to the nervous condition, believing that it is more of an effect than of a distinct condition or as a cause. Dr. Stuart McGuire, in his address before the Southern Surgical and Gynecological Association, in 1909, calls attention to the importance of studying the nervous make-up of gynecological patients, especially those in whom operation is considered. He says: "In endeavoring to forecast the final results of an operation the nervous and mental condition of the patient must be carefully considered." To those of us who treat these cases in a medical way I would change it and say, in endeavoring to outline the treatment, that the mental and nervous condition of the patient must be carefully considered. Too frequently we condemn patients to the operating table when Christian science and hygienic measures are nearer the right treatment. They need doctoring temperamentally more than surgically. By using Freud's physico-analysis and finding out the mental state, by inquiring into her home life and finding out if she has proper diet and the proper amount of rest, and if these conditions are not what they should be, correcting them, will do more good so far as her general condition is concerned than an operation. In a most interesting paper on Interpretation of Pain and the Dysesthesias, Dana also calls attention to the need of studying the nervous system of patients and especially the individual's susceptibility to pain. There are patients in whom pain and its accompanying phenomena are the cause and not the effect of the pelvic condition. These pains Dana speaks of as "attention pains." There is another class of patients, and I believe these are in the majority, who have a slight pelvic lesion but on account of the unstable condition of their nervous make-up it is magnified a hundred fold. In explanation, a very good *modus operandi* is offered by Dana in the article referred to. He says that when the nervous condition is at par or above, the impulses received from the small pathologic condition are not interpreted as pain nor are they recognized by the conscious ego, but when there is a subnormal condition of the nervous system

these impulses are recognized and interpreted as pains. I think the other manifestations by the nervous system seen in pelvic conditions can be explained along the same lines. As we know, the brain exerts an inhibitory action on the spinal cord; also, the spinal cord lodges the direct control of practically all functions. Therefore, when the higher centers are in a subnormal or abnormal condition, this inhibitory control is diminished or lost and the spinal cord centers run wild, giving the most unusual and almost inexplorable nervous derangements so frequently seen.

The loss of tone of the brain may be brought about by anxiety, domestic, financial or other mental morbid states or may be a part of a general subnormal condition which may be caused by overwork, improper food, exposure or some disease. By finding out these conditions and remedying them, the practical applicability of studying the nervous status is readily understood. In a patient who has a lowered condition of the nervous system, the pelvic condition may be either the effect or a condition of minor consideration of the general condition. If the effect, it would be as the result of attention pains acting through the sympathetic system, causing a passive congestion with its attendant changes. In a case of this character, it is clearly seen that an operation is not called for, but the treatment is purely suggestive with hygienic and tonic measures for the upbuilding of the nervous and general conditions. In a case where there is a slight pelvic condition with a lowered nervous condition our aim in treatment also should be in a non-operative direction.

The treatment, as I have just mentioned, should be in a non-operative direction and directed toward carrying the general health above par, thereby increasing the inhibitory function of the higher centers and not by lowering the stimulatory action of the spinal cord. In other words, bring about the normal relationship between these two systems. In some cases where the nervous manifestations are violent, a nerve sedative in the beginning is advisable, but its use should be discontinued as soon as possible.

REPAIR OF THE RELAXED VAGINAL OUTLET.*

By STUART N. MICHAUX, M. D., Richmond, Va.
Professor of Gynecology, University College of Medicine.

Without intelligent consideration of the anatomy and pathology it would be exceedingly difficult to present a paper which would show reason why repair of the relaxed vaginal outlet should be further discussed.

We will not attempt to compare the various methods of procedure, as they are thoroughly understood by a majority of those present. In all surgical procedures simplicity and speed are the key-notes of the situation. Owing to the pathological results of relaxed vaginal outlet, it is all the more imperative that the work should be simple and quick, as most of these cases require laparotomy in addition to colporrhaphy in order to restore the woman to health.

The relaxed vaginal outlet is that condition produced by parturition which allows retraction posteriorly of the anus, and a bulging into the vagina of the bladder and rectum, known as cystocele and rectocele. These conditions are usually accompanied by uterine prolapse.

Anatomy.—The female perineum, excluding the blood and lymph vessels, and nerves and fat, is composed of two important structure groups—the five layers of fascia and nine muscles, except for the two (ischio-cavernosa) these muscles should be thoroughly understood. To be as brief as possible, I will outline the structures from above downward, and run over the action of the muscles.

1. Lying beneath the peritoneum is the rectovesical fascia.

2. The levator muscle.

3. The obturator fascia—and post—or deep layer of the triangular ligament.

4. Bulbo cavernosa and transversus perinei muscles.

5. Anterior layer of triangular ligament or superficial layer of the deep fascia.

6. Areola tissue, deep layer of superficial fascia, sphincters ani and vaginae.

7. The skin.

The deep perineal fascia is composed of two layers. Attached to the pubis and descending ramus, it runs backward and inward and is reflected over the transversus perinei, coalescing

with the obtrurator fascia and forming the posterior layer of the triangular ligament.

The ischiocavernosi arise on each side from the tuber ischii, and are inserted in two bands above and below the clitoris (erector clitoridis).

The bulbo cavernosi arise from the central tendon of the perineum; the fibers of origin, decussating with the sphincter ani, pass forward on either side of the vaginal orifice and are inserted around the body of the clitoris.

The transversus perinei arise on each side from the tuber ischii and ascending ramus, pass transversely inward and join the fibers of the muscle of the opposite side, blending with external sphincter ani, the bulbo-cavernosi and levator muscles.

The levator ani arise on each side from the posterior surface of the body and ramus of the pubis, ischiatic spine, and the white line of the pelvic fascia, passes downward and backward to be inserted into the sides of the posterior walls of the vagina, the central perineal tendon and the rectum, where it blends with the muscles of the opposite side; finally, it is attached posteriorly to the tip of the coccyx. The action of this very important muscle is to support the pelvic and abdominal viscera; it dilates the anus during defecation, and draws the rectum, the perineum and the vagina upward and forward under the pubic arch. It hangs like a sling in the floor of the bony pelvis.

The sphincter ani arises from the tip of the coccyx, surrounds the anus and blends anteriorly in the perineum with the fibers of the bulbo-cavernosi, transversus perinei and levator ani muscles. These muscles of the pelvic floor coalesce and form a complete muscular diaphragm, which fills and closes the bony outlet of the pelvis.

The muscles of the pelvis are still further strengthened by the pelvic fascia, which binds them together and greatly increases their power.

The pelvic organs and abdominal viscera are therefore suspended in this pelvic sling, and are not resting on a firm arch of which the wedge-shaped perineum is the key-stone, as was formerly taught.

It is difficult to conceive of the possibility of the bladder, vagina, uterus and rectum reaching a stage of prolapse so long as the levator and its fascia remain intact. The relaxed vaginal outlet, with its accompanying pathology, can,

*Read before the Richmond Academy of Medicine and Surgery, April 23, 1912.

therefore, only result from giving away of the structures composing the sling. The exception to this dictum is found in an occasional case of complete procidentia in a nullipara. The explanation is splanchnoptosis and complete relaxation of the abdominal wall.

These women, in addition, have small, flabby uteri, which are retroverted to the first degree. The axis coincides with that of the vagina, and it is wedge-shaped, as shown by Pfanestiel. There is no negative intra-abdominal pressure and the organ simply drops out of the vagina of its own weight, leaving the bladder and rectum behind. If one of these women be placed on the table with the pelvis well elevated, and a speculum introduced into the vagina, there will be found no ballooning of the organ, nor will the uterus retract, following the abdominal viscera toward the diaphragm. It will be found that as the abdominal viscera ascend the flabby belly-wall recedes, with no change in position of the vagina and uterus.

Again, the relaxed vaginal outlet, rectocele, cystocele, and prolapse may be found in multipara in whom there is marked subinvolution of the muscles and fascia. This results from too frequent labors and malnutrition. Surgical intervention is usually unnecessary, as they are relieved by hygiene, rest, douches, and temporary supports.

Etiology.—The pelvic floor becomes ruptured as a result of inherent conditions in the mother, the child, or in the course and management of the labor, viz: too great or too slight a curvature of the vaginal outlet, which renders the mechanism of the fetal head imperfect, and abnormally small vaginal orifices, or unusually rigid muscles, and excessive deposit of fat in the perineum.

It is unnecessary here to go into further details.

Pathology.—Following the abnormal parturition, whether it be precipitate labor, faulty presentation of head, enlarged head, or small mother, there may be injury to the perineum. Rupture may be submucous, lateral, bilateral, median or transverse, complete (into the rectum), or incomplete. Occasionally there is an extensive tear in the vaginal sulcus and the fourchette, and no injury to the levator ani. Aside from the danger of infection, no pathologic condition need necessarily follow. The result of

rupture of the levator ani and its fascia being left untreated is—aside from infection—relaxation of the vaginal outlet. The anus is drawn backward toward the coccyx, as the fibers of the sphincter ani have lost opposition. The rectum above the anus loses its support in front, bulges into the vaginal outlet, and defecation becomes more difficult. The increased straining increases rapidity of formation of the rectocele. The rectocele pulls down the posterior vaginal wall, putting the utero-sacral ligaments on the stretch. The cervix then descends, and in doing so the anterior vaginal wall naturally is relaxed. This with the straining of defecation often allows the bladder to prolapse into the vaginal outlet, forming cystocele. Occasionally extensive lacerations are seen which have remained untreated for many years, and are unaccompanied by any marked rectocele, prolapse or cystocele. It has been my observation that these cases show signs of having been infected, this having caused such extensive peritoneal adhesions and thickening of the adenexa that it would require more force than straining at stool with loss of power of the levator ani to bring them down.

Diagnosis of an old rupture is made by palpation and inspection. Place one or two fingers an inch or more in the vagina with palmer surfaces toward the rectum and press the perineum backward; then instruct the woman to strain as though in the act of defecation. If there is no injury to the vaginal outlet, the vaginal orifice contracts on the fingers and is lifted by the action of the levator ani and transversus perinei toward the symphysis pubis. At the same time the lower fibers, pulling on the anal sphincter, cause the anus to bulge and dilate, though it remains relatively at its normal distance from the coccyx. On the other hand, should the outlet be ruptured, the same act will cause the anus to be drawn decidedly toward the coccyx, and the vaginal orifice, instead of closing and being drawn toward the symphysis, gapes still wider, and on removal of the fingers the anterior and posterior walls of the vagina will bulge into the vaginal orifice.

Recent rupture, if external or in the vaginal mucosa, is quickly and easily seen by simply separating the labia. The recent submucous rupture can only be diagnosed several weeks after parturition, for immediately after expulsion of the fœtus the muscles of the outlet are

so relaxed and paralyzed from stretching that they will not contract on voluntary straining; therefore, a careful perineal as well as cervical examination is imperative one month after labor.

Diagnosis of complete laceration needs no comment; there is always incontinence.

Treatment.—This should logically be undertaken within three days, the time depending upon the condition of the woman. Early repair prevents infection and restores the perineum to normal before any serious pathologic changes occur. The technique is simple. After sterilization, cocainization, or etherization, the upper segment of the vagina is packed with gauze, and the full extent of the tear is noted. With interrupted catgut sutures the torn mucous membrane in the sulcus is approximated, and sutures taken deep enough to include the ruptured tendon and fascia. The skin surface is best approximated with silkworm-gut taken deeply and lightly.

Late repair is necessitated by one of two reasons: either the obstetrician was careless, or the rupture was sub-mucous. This latter condition can scarcely be recognized, as stated above, until normal involution has taken place, at which time careful examination is rarely made. Let me state just here that this particular class of cases is the group that has brought forth this endeavor.

There are half a hundred methods of procedure, devised and modified by as many operators. I have investigated them with great care, and have tried many. I have, like the rest, modified the flap-splitting operation originated about the same time by both Montgomery and Mayo, both being similar to Holden's method.

The following procedure can be completed in a few minutes, requires no denudation or destruction of tissue, leaves no raw surface or loose flap, and, lastly, instead of pulling down the rectocele and interposing it between the torn surfaces of the levator ani (see Emmett's operation) it accurately approximates the levator ani muscle and its two fascial coverings (recto vesical and obturator), thereby forcing the anterior walls of the rectum upward and backward towards its normal position.

The technique consists in making a semi-circular incision through the mucous membrane down to the cellular connective tissue, beginning

half an inch above the caruncle on one side, around the lower margin of the vaginal outlet at the junction of the mucosa and skin, and carried to a corresponding point on the opposite side. In the median line, blunt scissors are inserted beneath the mucosa, covering the rectocele and then insinuated backward about an inch, when the blades are gently but widely opened as the scissors are withdrawn. The same procedure is carried out on either side by inserting the scissors just below the caruncle. Care should be observed that the mucosa is ripped up a little deeper on the sides than in the median line. The mucous flap covering the rectocele is then lifted, exposing the levator ani tendon, which is easily picked up on either side and approximated with two buried catgut sutures (20 day). Silkworm-gut sutures are then introduced from side to side, beginning at the bottom just above the anus, and carried through the skin deeply backward, passing behind the united levator, and coming out on the skin at the opposite sides. Three of these sutures are usually necessary. After being tied, a fourth silkworm-gut suture binds down the margin of the flap by a running stitch, beginning just beyond the caruncle, passing across the lower margin of the vaginal outlet, and ending at a corresponding point on the opposite side.

If the laceration is complete, practically the same dissection can be made, and after the ends of the sphincter ani are united the operation is completed as described above.

323 East Franklin Street.

Clinical Reports

PERFORATION OF UTERINE WALL WITH INJURY TO INTESTINE—RESECTION OF INTESTINE.

By C. S. LAWRENCE, M. D., Winston-Salem, N. C.

Mrs. M. T., white, married, age twenty-two, no children. Family history negative; personal history, had typhoid fever one year ago; otherwise negative.

Present Illness: On afternoon of May 1, 1912, while working in tobacco factory, patient fainted and had hysterical convulsion. Physician was called and gave hypodermic of morphine, and sent the patient home. She continued to suffer with pains in abdomen, nausea and vomiting and some vaginal bleeding during the night.

In the morning another physician was called, who, after obtaining the history, made a vaginal examination with a speculum: After removing some blood clots he saw something protruding through the cervix uteri; on inserting a pair of dressing forceps, he grasped something and pulled down several inches of this object. His curiosity being aroused, he examined more closely and found the object to be intestine. After replacing same in the vagina and placing a cotton tampon to hold it in, he sent the patient to the hospital and called me to see her in consultation.

When I saw her about two hours later, her general condition did not look serious; her temperature was normal, pulse 88, good volume. Patient did not look shocked nor was she suffering much pain. On examination by vagina, a cotton tampon saturated with blood was removed; following it came several coils of torn and bleeding small intestine. A digital examination revealed the fact that the intestine came through the cervix uteri, and that same was contracted tightly about the gut.

Laparotomy was immediately performed and the following condition noted: A ragged hole just above the internal os in the posterior wall of the uterus admitted the wounded intestine and held it so firmly that it could not be reduced to the abdominal cavity.

An incision was made in the posterior wall of the uterus to enlarge the wound, while the cervix uteri was dilated with the finger, when the wounded intestine was brought into the abdominal cavity. From the cavity of the uterus a foetus 10 c.m. long was obtained with several pieces of secundines. The intestine was torn from its mesenteric attachment for a distance of 62 c.m. This section was clamped off and removed, and an end-to-end anastomosis made by the suture method. A small cigarette-drain was placed into the cul-de-sac, the incision into the uterus closed with interrupted cat-gut sutures, and the drain brought out through the lower end of the abdominal incision.

Post-Operative Record—Recovery was rapid. The temperature never rose above 100 degrees F., and the pulse never above 130. There was no distention. A small vesical fistula developed on the third day, due either to injury to the bladder at operation or to pressure necrosis against drain; when discovered, I removed the drain, placed in a retention catheter, and gave

hexamethylenamine .3 gm. every four hours. There was no more leakage.

The bowels moved and flatus passed following a stimulating enema on the third day. On the fourth day the patient had a great deal of nausea and vomiting, which was controlled by stomach washing, followed by hydrargyri chloridum .6 gm., with sodii bicarbonatis .6 gm. The bowels moved well four hours later, and the patient continued to improve from this time on, being discharged from the hospital, May 20th, cured.

208-210 Masonic Temple.

Analyses, Selections, Etc.

Idiosyncrasy and Anaphylaxis.

With enlightenment and constantly increasing information regarding subjects that were long considered settled, numerous terms in medical science have undergone marked changes. The catch-all terms like rheumatism, hysteria, neurasthenia, eczema, inflammation of the bowels, have all yielded up several distinct and separate conditions which have taken away part of the greatness of the original terminology. Among the terms that soon must be relegated to the terminological scrap heap is that favorite euphemistic high-sounding term, saturated with pseudo-scientific acumen, idiosyncrasy. Idiosyncrasy has been defined as "any special or peculiar characteristic or temperament by which a person differs from other persons of ordinary habits." In the light of recent experiences and researches, the veil of mystery will be dropped ere long from this term.

Dermatitis medicamentosa is said to result from an idiosyncrasy to drugs. It is said to be more common among women and children. Curiously enough, however, small initial doses of the specific drug causing the condition, with a gradual increase of the dose will prevent a manifestation of the condition. The causes, as has been alleged, are elimination of the drug through the skin, defects of the kidneys and neurotic defects.

Urticaria has been widely advertised as resulting from an idiosyncrasy to oysters, clams, lobsters, milk, pork, veal, nuts, berries, mushrooms, oat-meal, butter, and antitoxins. The lesions are in general due to some disturbing

action on the digestive tract, as for example, an auto-intoxication. The toxins are developed from putrefactive changes occurring within the intestines. Then there are special so-called food idiosyncrasies that are independent of digestive power, as those resulting from milk, eggs, mutton, chocolate and various other articles of diet. All these so-called idiosyncrasies appear to have something in common with the recent investigations along the lines of anaphylaxis. Rosenau and Anderson have called attention to the profound chemical changes that occur in the nervous system due to the first injection of a foreign proteid. They have demonstrated the susceptibility of guinea pigs to egg albumin, milk and peas. This condition in a way is by no means dissimilar to that condition which is ordinarily designated angio-neurotic edema. Even what was previously termed family idiosyncrasy has been shown to exist in a form of hyper-susceptibility to the toxic action of horse serum that has been transmitted through female guinea pigs. It seems quite rational to suggest that further investigations along the lines of anaphylaxis will demonstrate that idiosyncrasy is not "a special or peculiar characteristic or temperament" but is the result of chemical changes due to the introduction of foreign proteids or the production of toxins through the ingestion of drugs. The term "idiosyncrasy" has almost outworn its usefulness; it served its purpose well in masking ignorance.—(*Editorial Med. Review of Reviews, June, 1912.*)

Hypodermic Injections of Iron and Arsenic in Secondary Anemia.

Musser (*Boston Med. and Surg. Journ.*) has had the opportunity to observe the general condition and to make repeated blood counts on a series of fourteen patients who received, hypodermically, injections of iron and arsenic. The difficulty and expense of procuring foreign preparations led to the use of a solution of ferric citrate prepared locally. This was used in varying doses, but on the whole the results were not such as would indicate a continuance of the treatment. The ferric citrate in doses sufficiently large to give good results were found to be so irritating and the injection so painful that the patients for the most part rebelled against the treatment. Also, in a few cases, there were attacks of fainting, vertigo, and in some cases vomiting after the injection. Then the present

formula was secured, and so far has given the most satisfactory results.

The iron is used in conjunction with arsenic and sodium glycerophosphate. Iron and arsenic, of each .06 gm., and sodium glycerophosphate .10 gm., are dissolved in 1 c. c. of distilled water. This makes a slightly alkaline, reddish-tinged solution, clear, without sediment. It is placed in small glass ampules, sterilized, and when sealed is ready for use. Each ampule contains a sufficient quantity for one dose. The few minutes necessary to sterilize the syringe and needle are all the time required to give the injection. It may be given in any muscle, but in the treatment of ambulatory cases the most satisfactory site is directly into the muscles of the thigh or into the deltoid muscle. The solution is so free from irritating qualities that it has not been found necessary to give the injections deep into the gluteal or lumbar muscles.

The treatments, as a rule, were given twice a week, though in some cases as often as daily for a short time. In several cases the injections were only given once a week. With the iron and arsenic, treatment was usually given for the local condition causing the anemia. In some of the cases treatment of the local condition had been carried on for some time without any definite improvement. On the addition of the iron and arsenic the results were usually most pronounced. The increase of hemoglobin and erythrocytes brought with it freedom from the troublesome symptoms. The amelioration of the symptoms and improvement in the primary trouble usually resulted in such improvement that in most cases the treatment could not be carried as long as was desirable. In most of the cases the treatment was simply the correction of hygienic and dietetic faults.

In the fourteen cases treated in this manner only one failed to respond promptly. This patient, a young, married woman, was found later to be pregnant and the treatment was discontinued.—(*Jour. American Med. Assoc., June 15, 1912.*)

Reinfection with Syphilis.

Reinfection with syphilis may be expected with more frequency now that it seems probable that one attack does not confer immunity. When the first reports of salvarsan were published a few commentators were led to take a rather gloomy view of the effect on morals if the fear

of contagion were removed. They have thus been answered much sooner than expected, for if a patient really is promptly cured, he may in a short time be just as liable to another attack as he ever was, and the check upon unbridled license is therefore undiminished. Indeed, there is nothing known yet as to the effect of repeated infections. It is entirely possible that cures may be more difficult in such cases, and until we do know let us take it for granted that they will be. The disease has taken so long to cure that the cases of reinfection have been very few, and that has led us to believe that in the process of cure a real immunity to extra infection has existed as a result of treatment. Now that the active organisms can be destroyed before the body cells have taken on any kind of adjustment to their presence, we are confronted by an entirely different proposition. Even the blood tests now so popular may not show the presence of organisms which are practically hibernating, and we must go slow in the interpretation of positive or negative results. The whole matter of cure and subsequent susceptibility is so new and so involved that it will take a decade or two to clear it up. Twenty years hence these "cured" cases may be the subjects of extensive investigations by our alienists and neurologists, just as those "cured" by other means are now under observation and restraint. No! Morality won't suffer at all by salvarsan. That drug has made a deservedly big splash even if it doesn't cure a case, but the ripples are already quieting down. The immoral life is just as dangerous as ever.— (*Editorial, American Medicine.*)

Psychogenesis and Internal Secretions.

Dr. Williams, Washington says that we know very little with certainty about the pathology of hyperthyroidism or disorders of the adrenal system.

The importance of rest in the treatment of these cases is emphasized by most writers, as the conditions present are supposed to depend upon overstrain.

Now, it is very evident that it is not physical overstrain that is meant. That mental overstrain can produce these syndromes I very much doubt; but that emotional overstrain may be the prime factor in such cases is an explanation to be seriously thought of, in view of the experimental facts which follow.

It has recently been shown, through a bril-

liant experimental research by Cannon, of Boston, that the emotion of fear in animals is capable of stimulating the flow of adrenal secretion. He demonstrated that in frightened animals the blood from the adrenal vein is so rich in adrenal substance as to be capable of inhibiting peristalsis in an isolated strip of intestinal muscle. This is due to the presence, in appreciable amount, of adrenal substance, since contact of the latter, in a 1 : 1,000,000 solution, with the intestinal strip will also inhibit peristalsis.

We knew that the emotion of fear could inhibit gastric secretion; and Pawlow has shown that certain emotions of anticipatory joy can induce a flow of this secretion. Crile has shown, experimentally as well as clinically, that the emotion of fear increases the thyroid secretion; he demonstrated this clearly in certain cases—not necessarily, however, in normal individuals.

Although we have been in the habit of regarding the autonomic nervous system as rigidly automatic, these experiments show that the sympathetic fibers are somewhat under cerebrospinal control, because in each of the experiments the autonomic symptoms have occurred in virtue of the impressions upon the cerebrospinal nervous system.

It is reasonable to suppose that fear, which, when acute, such experiments have shown capable of exciting the autonomic nervous system and the glands thereto attached, may, when it takes the form of a chronic fear, also produce, less abundantly, but to an extent clinically manifest, an overaction of the autonomic nervous system and through it of the glands it controls.

It is our duty to investigate the chronic notion of fear; which we call anxiety, stress, or propoession, in the genesis of cases of hyperthyroidism and also of hyperadrenalism not due directly to morbid action of the adrenal bodies. I have seen cases of Addison's disease in which the only traceable etiological factor was prolonged stress, and in which autopsy showed no disease whatever, but merely an atrophy of the adrenal-gland substance. The condition may have been congenital, but the fact remains that prolonged stresses have been shown to exist in each case I have seen. Perhaps these cases are homologues of those where hypoplasia follows hyperactivity of the thyroid gland as described

by Wilson. Their prolonged anxiety, demanding much adrenal juice for its pressor effect, would lead to eventual exhaustion of the gland and the hypoplasia found *post mortem* in my cases. In these low-pressure cases, adrenal substance has been beneficial in my hands. But a wise hygiene and more especially a sane psychotherapy are also required to prevent continued exhaustion. Such cases can later remain well without taking adrenal when properly re-educated.

Thus, additional clear, physical intercorrelations of mind and body have been experimentally demonstrated, giving rise to inferences which explain what was formerly conceived of so vaguely. From these it will not be difficult to evolve practical means for the relief of suffering and the cure of disease. The scientific psychotherapy which depends on them differs vastly from the crude rule of thumb of the suggestionist. The latter is really no better than the amateur of psychotherapy, whether lay or clerical, who does so much harm with false ideas.—(*Monthly Cyclopedia, and Med. Bull.*, June, 1912.)

Psychogenic Disorders in Children.

To treat a neurotic child by rest or other physical means is more rule of thumb, says T. A. Williams, Washington. The frequent failures which follow such an unscientific method are prevented by ascertaining and then rectifying *unwise psychological factors* in the etiology. The cases reported show the utility of proper psychopathological training in that they were all rapidly cured after months of unsucccess by the empirical methods employed before they were seen by the author. For instance, a so-called chorea was found, by analysis, to be, in reality, a tic due to scrupulous ideas. The cause of an insomnia and nervousness, after study, was discovered to be induced by the apprehensiveness of the parents. The removal of unwise solicitude and by conscientiousness has kept the child well for eighteen months.

A case, showing tearfulness and distress due to unwise repressions, was cured in a few days after analysis had revealed the source of these. A case, in an older child, of developed obsessions and mental manias was traced to a jealousy complex. Psychomotor exercises along with the realization of the import of his own state produced recovery in a few months. Likewise, simple explanation and psychomotor exercises served for the removal of pseudo hallucinations

and hysterical phobia in an eight year old boy.

The discussion of the cases points to a mechanism by induction through parental management rather than through the direct transference mechanism postulated by the followers of Freud from their analysis of adults.—(*Author's Abstract.*)

Book Notices.

Pocket Medical Formulary. By E. QUIN THORNTON, M. D., Philadelphia. Tenth edition, revised. Flexible leather-bound volume, containing over 2,000 prescriptions. Lee & Febiger, Philadelphia and New York, 1912. Price \$1.50 net.

Many a larger and more expensive book is sold every day to physicians with not one-half as much useful information as is contained in the handy little reference work under consideration. Diseases have been arranged alphabetically, and, under each, remedies are mentioned with the quantities of ingredients given both in ordinary and metric systems. Indications and annotations for a choice between the various formulæ are noted, a point that will often prove of service. Among other things we find tables of ordinary weights and measures, brief reference to the metric system, together with comparative scales showing at a glance the exact equivalent of the two systems; there is also given a list of important incompatibles, poisons and antidotes, as likewise a table of doses of remedies.

International Clinics. Edited by HENRY W. CATTELL, A. M., M. D., Philadelphia. Volumes III and IV, 1911, and Volumes I and II, 1912. Philadelphia and London: J. B. Lippincott Co. Cloth. 8 vo. Price \$2. each. About 300 pages to each volume.

These quarterly clinics treat of adversity of subjects, covering every phase of medicine. The various chapters are written by men well versed in matters along their special lines, and the latest advances are fully discussed. It would be difficult in a mention of this character to tell of the numerous topics of live interest that come in for attention—and each volume contains its share of up-to-date matter—but if any very recent material claiming general medical notice has been overlooked, we are at a loss to know what it is. In some instances, old and useful but neglected subjects are brought forward for discussion, and new lights turned on them. A regular subscription to each series of these clinics as published will prove a decidedly practical and useful investment.

Editorial.

Coagulation of Blood.

The old conception of blood clotting held that three elements were necessary for a coagulation—fibrinogen, fibrinoplastin and fibrin ferment. Later, it was held that fibrinogen, a solution of calcium, and fibrin ferment, were necessary to form fibrin, which is the chief element of a blood clot. It is now known, however, that the reaction is much more complex, particularly so far as the formation of fibrin ferment is concerned.

Fibrin ferment does not come directly from the blood platelets as was formerly taught, but is the result of a chemical reaction between three substances, thrombogen, calcium and thrombokinase. Thrombogen is derived directly from the dissolution of the blood platelets which occurs when blood comes in contact with any foreign substance or with an abraded area. The calcium is, of course, always in solution in the blood or lymph serum. The most interesting one of these substances, however, is thrombokinase. This is apparently not a true ferment as it is taken up in the reaction with thrombogen and calcium to form fibrin ferment. It is universal in its distribution, being obtainable from any of the tissues of the body, and from the white corpuscles.

The reaction in the clotting of blood would seem to be first the formation of fibrin ferment from thrombogen, which is derived from the blood platelets, and calcium, which is a solution in the blood serum, and thrombokinase which is in all the tissues of the body. Fibrin ferment, being formed by the interaction of these substances, acts on the fibrinogen and forms the fibrin of a blood clot. In other words, thrombogen, calcium, and thrombokinase make fibrin ferment and fibrin ferment acts upon fibrinogen and forms fibrin. Whenever an injury to a blood vessel occurs, thrombogen forms at once from the blood platelets. Thrombokinase is contained in all tissues, so no matter where a hemorrhage occurs we have the essentials for the formation of fibrin ferment. This is a very wonderful provision of nature to control hemorrhage and like other reactions its extent depends upon the relative quantity of each of the substances involved. For instance, in a small abrasion in a blood ves-

sel when the conditions are otherwise normal, clotting would be limited by the extent of the injury. Of course, when the blood is poured out from the vessels and there is complete disorganization of the platelets and an abundant raw surface the conditions are different and clotting may occur extensively. In a normal blood vessel the extent of the clotting is limited by the length of time the blood platelets and corpuscles are exposed to the injured intima but chiefly by the extent of the injury to the intima itself. Naturally, in a considerable injury of the vessel wall and with slow blood stream we would expect extensive thrombosis, whereas in a very slight injury with a rapid blood stream the thrombosis would be very limited, for thrombokinase is not a true ferment and is taken up in the reaction to form a blood clot.

As thrombokinase is essential to clotting and as it comes chiefly from injured tissue, when the trauma to the intima is very slight, not enough of this substance is obtained from such a small injury to form an extensive clot. Guthrie, in a recent work on blood vessel surgery, has very clearly pointed out these factors as the principles underlying successful blood vessel surgery.

—J. S. H.

The American Association of Clinical Research,

Recognizing the necessity of interesting more physicians and public-spirited men and women in this work, passed a resolution at its meeting September, 1911, that "Centers of Clinical Research" be formed in the larger cities—New York, Philadelphia, Boston, Chicago, San Francisco, Baltimore and wherever a number of workers can be brought together to do or to influence others to do clinical research work. Hospitals and colleges are specially invited to provide in charter or by-law or by courtesy, for clinical research by the conjoined method.

The next meeting of the Association will be held in New York City, November 9, 1912, at the Academy of Medicine. A number of notable contributions have already been promised, and members desiring to read other papers are requested to send in titles at once to the Secretary, Dr. James Krauss, 419 Boylston Street, Boston, Mass.

International Congress on Hygiene and Demography.

The fifteenth International Congress on

Hygiene and Demography will be held in Washington, D. C., September 23-28, 1912. The Department of State has appointed Dr. Henry P. Walcott, of Massachusetts, president, and Dr. John S. Fulton, of Maryland, secretary-general. All communications should be addressed to the latter, at Senate Annex, Washington, D. C. This Congress will afford a rare opportunity for those interested in public hygiene and demography to receive much valuable information through papers and discussions. Thirty-one foreign countries will be represented in addition to federal, state, municipal and private health agencies of the United States.

In connection with the Congress there will be an Exhibition on Health, from September 16 to October 4, inclusive, at which the hygienic and demographic work of the United States and its dependencies will be illustrated.

All interested in public hygiene are urged to attend and also to become members if possible.

The Clinical Congress of Surgeons of North America

Will hold its third annual meeting in New York City November 11-16, 1912. Those in attendance will have the opportunity of witnessing important surgical clinics held in New York during that week. There will be a complete program of clinics each day for those interested in the various branches of surgery. Dr. Franklin H. Martin, of Chicago, is general secretary.

The American Electro-Therapeutic Association

Will hold its next annual meeting at the Jefferson Hotel, Richmond, Va., September 3-5, 1912.

This is the largest body in the world whose object is devoted principally to physical therapeutics, i. e., electricity in all its forms, hydrotherapy, phototherapy, mechano-therapy, exercise therapy, dieto-therapy and other natural agencies. The membership comprises the leading experts who are engaged in this special line of work in this country, with fraternal delegates from Canada, England and France.

The Association has not before favored Richmond or this section with one of its meetings, and it is to be hoped that the local profession will lend its aid to make the convention next month a creditable success. Dr. J. C. Walton, of Richmond, is chairman of the Committee of Arrangements.

The Rawley W. Martin Memorial Association

Was organized in Lynchburg, Va., July 23rd, with the following officers: Dr. A. W. Terrell, president, Lynchburg; Drs. A. R. Long, Lynchburg, L. E. Harvie, Danville; J. W. Whitehead, Chatham; G. Tucker Harrison, Charlottesville; E. S. Reid, Chatham; and R. T. Ramsey, Toshes, vice-presidents; Dr. R. S. Martin, Stuart, secretary; and Randolph Harrison, Lynchburg, treasurer. Nothing definite has been determined upon as to the form the memorial will take, though we understand it has been suggested that a shaft be erected on the Gettysburg battlefield where Dr. Martin fell wounded while leading his regiment in the memorable charge of Pickett's Brigade. We heartily endorse the idea of erecting a shaft because of its permanency as a record of his useful life, but we believe while appropriate at Gettysburg, it would be more appreciated if placed on Virginia soil where live those who knew and loved him.

The Southwestern Virginia Medical Society

At its recent meeting elected the following officers for the ensuing term: Dr. J. T. Graham, Wytheville, president; Drs. J. A. Tipton, Hillsville and J. W. Preston, Roanoke, vice-presidents; and Dr. A. B. Greiner, Rural Retreat, secretary-treasurer, (re-elected). The next meeting of the Society will be held in Roanoke, Va., during May or June, 1913.

Typhoid Outlook in Virginia Encouraging.

The State Board of Health reports a considerable decrease in the number of cases of typhoid fever in the State during June, 1912, as compared with the corresponding month last year. These reports are encouraging and show that the work of the Board during previous years is having its effect in the better information of the people.

The Board has also issued rules and regulations for the guidance of those administering the vital statistics law and the new pamphlet gives the text of the law for the instruction of physicians, undertakers, registrars and midwives.

The Petersburg (Va.) Health Department

Reports that the mortality in that city for the month of July was considerably lower than during the corresponding month last year, although the deaths by violence were more numerous.

There were ten less births than deaths reported for the month.

The First International Congress on Comparative Pathology.

Will be held at the Faculty of Medicine, Paris, October 17-23, 1912. As the object of the Congress is exclusively scientific, it will bring together scientists interested in pathology in the widest acceptance of the word. Promoters of the Congress desire those interested in the United States to participate. For information, address the Secretary-General of the Congress, Paris.

The American Public Health Association.

The membership of which is composed of public health officials of the United States, Canada, Mexico and Cuba, will meet in Washington, D. C., September 18-20, 1912. Dr. John N. Hurty, of Indianapolis, is president.

The National Conference of Charities and Corrections.

Which held its annual meeting in Toledo, Ohio, in June, selected Seattle, Wash., for its 1913 meeting, with Frank Tucker, of New York, as president.

The American Hospital Association

Will convene in Detroit, Mich., at Hotel Ponchartrain, September 24-27, 1912, for their fourteenth annual meeting. Dr. Henry M. Hurd, of Johns Hopkins Hospital, Baltimore, will preside. Dr. J. N. E. Brown, of Toronto, Canada, or Detroit General Hospital, Detroit, Mich., is secretary.

Infant Mortality Lowered Nearly One-Third in New York.

The Babies' Welfare Association reports that during the first week in July—the beginning of the season of greatest infant mortality—there was a decrease of nearly one-third as compared with the deaths reported during the same period last year. This great decrease is attributed to the work of the pure milk stations, which are now serving milk to 13,000 registered infants.

The United States Civil Service Commission.

Washington, D. C., announces an examination on September 4, 1912, to secure eligibles from which to make certification to fill a vacancy in

the position of dental interne (male), in the Government Hospital for the Insane, Washington, D. C., and vacancies requiring similar qualifications as they may occur.

Dr. William S. Gordon,

Of Richmond, is spending the month of August at Nimrod Hall, in Bath County, Va.

Dr. A. G. Crockett,

Of Max Meadows, Va., has been appointed by Governor Mann to fill the vacancy on the State Board Health in the ninth district, caused by the removal of Dr. J. H. Dunkley from Saltville to Roanoke, Va.

Dr. Wm. H. Parker

Has been appointed by the Richmond City Council to fill an unexpired term—due to the death of a member—on the Board of Police Commissioners.

The Virginia State Board of Pharmacy,

As a result of their recent examinations, have granted licenses to twenty-five of the fifty applicants to practice pharmacy in this State. Some who made a part of the examinations were given licenses as assistants.

Delay in publication of the present issue has been occasioned by death in the family of the Managing Editor.

Obituary Record.

Dr. Maurice Howe Richardson,

One of the foremost surgeons of the country, died at his home in Boston, Mass., July 31, 1912. Born at Athol, Mass., December 31, 1851, he received his A. B. degree in 1873, and graduated in medicine in 1877, from Harvard University. At the time of his death, and for many years previous, he was Professor of Surgery at the Harvard Medical School. Dr. Richardson was a member of various national and local medical societies including the Medical Society of Virginia, in which he was elected an Honorary Member in 1900, in all of which he will be greatly missed on account of his sterling worth.

THE Virginia Medical Semi-Monthly.

(FORMERLY VIRGINIA MEDICAL MONTHLY.)

Vol. 17, No. 40.9
Whole No. 394.

RICHMOND, VA., AUGUST 23, 1912.

10 Cents a Copy.
\$2.00 a Year.

Original Communications.

VITAL STATISTICS.*

By C. P. WERTENBAKER, M. D., Norfolk, Va.
Surgeon, U. S. Public Health and Marine Hospital
Service.

I invite your attention to-day to the subject of *Vital Statistics*, because it is one of the most important subjects than can be brought before any gathering of medical men, and I feel that I can be of no greater service to this Association, and to the country at large than by bringing it to your notice.

I wish I could find some other term than "vital statistics" to indicate this subject, because the word "statistics" usually conveys the idea of long columns of dry and unintelligible figures, the very thought of which brings on "that tired feeling" that is not conducive to active interest in the subject. While this may be true of the columns of figures, it does not apply to the subject itself, which I believe you will find of lively interest, and most important in its many bearings.

Let us regard the matter of recording births and deaths merely as one of book-keeping, a sort of day book as it were, that shows the individual transactions, while the census which is taken every 10 years is our national inventory of stock.

As in every commercial transaction it is essential to good business to make a record of it in order to enable one to keep in touch with his business, so it is necessary that the State, which is merely a joint stock company of its inhabitants, should keep a record of its members and its assets.

A business house makes a record of each invoice received, and every shipment made; the registration of births and deaths is the State's method of doing the same thing.

*Read before the Association of Surgeons of the Norfolk and Western Railway, at Cedar Point, Ohio, June 18-19, 1912.

Each baby born in the State is like a new consignment of goods, as well as a new stock holder in the company that we call the State. Every death takes away from the assets of the company, and reduces the stockholders by one. It is, therefore, but the application of an elemental business principle to require the registration of all births and deaths occurring in the State.

It would seem that a principle so simple as this would have been one of the first to be incorporated in the laws of all of the States, but by one of those curious inconsistencies sometimes found in our laws, many of our States make no provision for an official record of those who are born, or those who die.

The date of birth and pedigree of horses, cattle, hogs, dogs, etc., are kept, but in many States we make no provision for human beings. A man will frequently go to considerable trouble and expense to record the birth and pedigree of a colt or a dog, when he will take no steps to record the birth and pedigree of his baby.

Possibly if we had some such association for human beings that would correspond to the Stock Breeders Association, we might get a record of the birth of a child. When a child becomes as valuable as a colt or a dog, no doubt his pedigree will be registered.

In many of our States no such registration is kept, outside of the cities; consequently, we have no means of knowing how many children are born, or how many deaths occur in the State for any given period, nor do we know the causes of death of those who die; therefore, it is impossible to compile any reliable statistics relative to births and deaths, or cause of death.

We call ourselves a civilized people, and would resent violently any imputation to the contrary, but we are obliged to hang our heads in shame when we contemplate such a situation as this.

The casual observer who has never given much thought to this subject may ask "what difference does it make whether we know these things or not. It would be interesting to have this information but what practical value is it?" Let us investigate the subject and see what is the answer to this question.

First of all it is essential that the State should know from day to day and year to year if its population is increasing or decreasing, and the relation of births to deaths. If it is found that there has been an increased death rate it will give the health officers a basis for their investigation as to the causes of the increase. Without this knowledge there is no way to tell that there had been such an increase, therefore the need for such an investigation might not be known.

When we know our birth and death rate we can compare it with the birth and death rate of other States and communities, and if there is much divergence from the general average, we can proceed to ascertain the cause, and possibly correct it, but until we have the requisite information we can do nothing. Thus it is seen that this information, which we call vital statistics, is the basis on which all intelligent public health work must rest, and it is unnecessary to pause here to present any arguments before this Association to show that anything affecting the public health is a matter of vital importance to every individual. It is well known that the health of the individual is the most important factor in our national life, for without it wealth, freedom, and in fact life itself is futile. The health of a nation, which is but the aggregate of the health of the individuals composing it, determines the part that nation plays in the world's history, limits the sphere of its activity, and marks the confines of its achievements. It decides the fate of armies and of nations, changes the best laid plans of mice and men, and is a potential factor in the progress of civilization.

Vital statistics record the real life of the people; they tell where and when they are born, and of what parentage, and when they die, the cause of death, the age at which they died, and also their social condition, occupation and color, and all of this information is essential in order to properly study and estimate the conditions under which they lived. Thus the answer to many sociological problems can only be found

in vital statistics, and the question resolves itself into one of dollars and cents when we consider that many conditions that now are a tax on the financial resources of the State, and the community, might be corrected if we only had reliable data from which to draw conclusions.

As an illustration of the practical bearings of vital statistics, I heard not long ago of an incident showing how the sale of a large tract of land was influenced by keeping these statistics.

A capitalist came into a Southern State for the purpose of buying 10,000 acres of land. He went first to the State health officer and asked to see the vital statistics for each county in the State, saying that he wished to be assured of the healthfulness of the section before he would consider buying land there. The health officer had to admit that there was no general registration of vital statistics by the State, but he told the prospective purchaser that some sort of record of births and deaths were kept by several of the counties, but they were meagre, and did not give much information. The inquirer took the names of those counties and said he would make further investigation of them, as they were probably the most progressive counties in the State, which they proved to be. He did not care to hear anything about the other counties, and only took the names of those that were doing something in the way of vital statistics. Thus it is seen that keeping such records had a practical bearing on the sale of land, and probably was a determining factor whether that man settled in that section or not. This relationship would not have been suspected by a casual observer.

Communities frequently fail to appreciate the value of such official records, and the influence they have in attracting investors. One of the first questions asked by a person who contemplates settling in a given community is in regard to its healthfulness.

How little people know of the healthfulness of their communities is illustrated by a story told me by a State health officer not long ago. He said he went to a small town in his State, where births and deaths are registered, and met a prominent business man, who said to him, "What are *you* doing here? Don't you know there is no healthier town in the State than this? We have very little sickness, and those who die, die of old age. You do not need to investigate the health conditions of this town."

The health officer asked him if he knew how many deaths had occurred in that town during the past year, and the man said "No." The health officer told him.

"Do you know how many cases of tuberculosis have died here within the past year?" And again the prominent citizen had to admit that he did not know, and the health officer told him. He questioned him about births and deaths and the relative standing of the town as to death rate as compared with similar towns in the State and the United States, and found, as he had expected, that the prominent citizen knew nothing about the subject. He had drawn his conclusions from superficial observation and not from investigation. As a matter of fact, the health officer found that the death rate for that town was considerably higher than for similar towns in the State, and upon investigation discovered that the excess was due to typhoid fever.

This led to an investigation as to the causes for this condition, and it was found that there were a number of unscreened privies in the town, to which flies had free access. When these privies were properly screened and other measures taken to prevent the spread of typhoid, the number of cases was promptly reduced, and the death rate of the town fell to normal or below.

Thus it is seen that it will not do to draw conclusions without investigation to learn the real conditions.

There are many towns throughout the country where the inhabitants, like the prominent citizen that I have mentioned, say, and believe, with smug complacency that their town is the healthiest in the State, and to hear them talk one would imagine that one would have to leave the town in order to die. Of course, this is not true, but it just seems so to the inhabitants.

You doubtless recall the story of the wife who was reading a newspaper and said to her husband, "I see it is stated here that married men live longer than single men." "O!" said her husband, "that is not really so; it just seems longer."

As a matter of interest, I would suggest when you get back home that you make some inquiries at your health office, or if you have no health office, do a little figuring on your own account, to ascertain how your town stands relatively in regard to deaths as compared with towns of the

same size in the States that do register births and deaths.

Probably one of the first things you will discover is that you have no record of deaths and consequently can get no accurate information on the subject. I am quite sure this will be the case if you live in a country district in a non-registration State. When you have once tried to get such statistics for your town or State, and find that such records are **not** kept, you will commence to inquire why they are not kept, and thereafter you will be an advocate for a law requiring the registration of births and deaths, and that is just the position in which I am trying to place you.

My limited time will not permit me to point out many other advantages to the State at large to be gained by a strict registration of births and deaths, as I must now turn to consider some of the advantages to the individual in having such an official record.

The question of inheritance frequently rests upon the official record of birth, giving names of the parents and date of birth. Instances are numerous where people living in States having no such registration have been deprived of an inheritance because they could produce no proof that the individual was the person he claimed to be. Without an official certificate of birth one may have no way of proving his identity. Have you ever considered how you would prove your identity if you were in a place where you are unknown?

You have doubtless known of cases in which the greatest trouble and expense has been caused by lack of proof of death. The most familiar instance is in collecting life insurance. It is necessary to produce satisfactory proof of death before insurance will be paid. When the death has been properly registered this proof is easy to get and the insurance is collected without trouble. The same thing is true of inheritance in which legal proof of death is necessary.

There is another phase of the registration of deaths that is most important from the standpoint of public health. It is that it prevents the public from being exposed to infection from a corpse dead of an infectious disease. The spread of infection by means of a corpse to those who attend a funeral is by no means unknown. Where the death certificate shows that the person died of such a disease, the funeral should be private. Thus, knowing the cause of death,

the health officer can take necessary precautions. The registration of births and deaths is a preliminary step toward the registration of contagious and infectious diseases, which from the standpoint of public health is of the greatest importance, and in which you as physicians have the greatest interest.

In the larger cities reports of such cases are made, but in the rural districts, and smaller towns there are practically no reports, certainly none of much value.

It is not my purpose to discuss here this aspect of the subject as it is one that would need an entire paper to itself. I merely mention it to show that the registration of births and deaths is a step in this direction. If we can get all the States in the registration area, and the machinery established for the registration of births and deaths, morbidity reports will follow in the course of time. This work is largely educational and it is necessary to impress upon the people its value before we can hope for the best results.

In many of our States we have laws regulating the age at which a child may attend the public schools. There are also laws regulating the age at which a child may be allowed to work in a factory or at other employments. These laws were passed by the legislature because it believed that they were necessary for the protection of children. How can the age of a child be determined if there is no official record of its birth? It has been customary to accept the statement of the parents as to the age of the child in the absence of any official record, but times have changed, and many parents do not hesitate to state that a child is older than its real age to get it employment in a factory or elsewhere.

In order to cast his first vote in an election it is necessary that the voter should be 21 years of age, but with no official record of birth how can this fact be determined? We talk a great deal about the privilege of being a freeman and exercising the right of franchise, and we have gone to war and fought to maintain that principle, yet we seem quite willing to allow a person to claim all the rights and privileges of citizenship in this country with no proof that he is of legal age, beyond his mere affidavit. If our election laws required that every voter exercising the franchise for the first time should present his official certificate of birth as a pre-

requisite to voting, it would do much to stimulate the registration of births.

In all the countries of Europe registration of the birth of a child is a most important matter, and the birth certificate is one of the most important papers that one can possess. It is the means by which one proves his identity. In those countries it is incumbent upon the parents to register the birth of the child within a few days after it is born, and any neglect to do so is promptly punished. As a result of this system registration of births is prompt and efficient. In this country we depend upon the physician or midwife who attends the case to register the birth (in those States and communities where there is any registration) with the result that many births are not registered. I can but think that the European system which requires the parents to make the registration is superior to our own. I believe that much good could be accomplished if physicians generally would urge upon parents the many advantages to the child to be derived from an official register of its birth. If the mother can be taught the value of this procedure to the child it is safe to assume that she will attend to the matter, even though no penalty is attached to its neglect on her part, and that it is the duty of the physician or midwife to make the report.

If physicians and midwives were supplied with post card blanks for reporting such births, and if every prospective mother was supplied with one, and told to report the birth within one week after it occurred, I believe that the custom would gradually be established, even in States that have no general registration law. This work is educational and people have to be educated to the value and necessity of it before such laws can be established or at least made effective.

It may be objected that as physicians and midwives are charged by law with this duty, it would produce confusion to have the parents report the birth as well as the physician or midwife. It would seem that this is a minor objection, as it would only require a little scrutiny on the part of the registrar to discover that the reports were duplicates. Surely it is better to have duplicate reports of a birth than no report.

I think also that a certificate of birth should be issued by the registrar for every child whose birth is reported. These certificates should be printed on tough paper and filled in with a per-

manent black ink, and should be sufficiently handsome to make the holder prize it. The certificate should be carefully guarded as it may prove most important. I have often thought that it might be a good idea, and enhance the value of the certificate, if the finger prints were made a part of the birth record as a means for identification of the individual. It is well known that the markings on the fingers of each person are distinctive; they do not change through life, and therefore form one of the best possible means for identification. If the finger prints of every individual were recorded, the identity of unknown dead could be established, and in many other ways the system would prove of value.

The idea is by no means new. It has been used for centuries in China, and England adopted it for use in India in lieu of a signature to official documents where but few of the natives could write, such as the transfer of land, receipts for money and in commercial agreements. In this country the finger prints are made a part of the enlistment records for every recruit in the Army and Navy; it is also a part of the record of every criminal who is convicted of crime in certain of our courts.

I also know of individuals who register their finger prints with their banks, and authenticate their checks by the finger print, in addition to the signature. In such cases the thumb or forefinger of the right hand is usually used. I also know of individuals who carry with them as a means of identification their finger prints and signature certified by their bankers. This frequently is used to prove their identity when wishing to draw money at a bank, or for other purposes.

I must now bring my remarks to a close, as I have occupied more time than I had intended. If I have succeeded in arousing your interest in this subject of "Vital Statistics," I will feel that the time has not been ill spent for any of us. Before leaving the subject I wish to point out wherein, you as physicians can be of the greatest aid in making these statistics valuable. It is of the greatest importance for statistical purposes that the cause of death should be accurate and conform to a standard classification. When you make out a death certificate try to fill in all the blanks as accurately as possible, and if you cannot get the correct information, write

"Unknown," rather than just making a dash of the pen through the answer.

Be sure that the date of death is given correctly, and even the hour and minute should be given, if possible.

Be sure that the cause of death is given correctly. Such terms as "natural causes," "heart failure," "kidney trouble," etc., are entirely meaningless, and are only an evidence of carelessness or ignorance on the part of the physician.

I have here a number of copies of a Physician's Pocket Reference to the International List of Causes of Death," issued by the Bureau of the Census for the use of physicians. I will pass them around, and I hope that each of you will take one and use it. Additional copies can be had at any time by application to the Director of the Census.

I also have here a number of copies of the pamphlet of the American Medical Association on "The Present Situation in Vital Statistics," containing the model registration law, which is recommended by the Bureau of the Census as a guide for similar laws to be enacted by the States.

In conclusion, let me urge that you, as representative medical men in your respective communities, will take up this question of "Vital Statistics" in your State, if it is not a registration State, and urge the passage of a registration law, based on the model law.

Talk to your legislators and your newspapers and agitate the matter. I am sure you appreciate the necessity for such a law, and the way to get it is to get behind the movement and push—and push hard.

THE ROLE OF PSYCHOTHERAPY IN PELLAGRA.

By GEORGE M. NILES, M. D., Atlanta, Ga.
Professor of Gastro-Enterology and Therapeutics,
Atlanta School of Medicine.

Hope, like the glimm'ring taper's light,
Adorns and cheers the way;
And still, as darker grows the night,
Emits a brighter ray.—Goldsmith.

There are few spectacles more melancholy than a confirmed case of pellagra—one whose depression has deepened into gloom, but where the latter has not been blunted to the point of indifference (gastrointestinal, dermal, nervous).

Presenting as it does a four-fold syndrome

and psychic), with each class of symptoms showing sundry variations, this disease taxes to the uttermost the acumen of the pathologist, the experience of the clinician, and the resources of the therapist.

With measures of treatment, medicinal, hygienic, dietetic or climatic, this paper will not deal. All of them have their proper and beneficent place. It is, however, that refinement of treatment, psychotherapy, I desire to consider, and trust that some of the conclusions, apparently so helpful to me, may appeal to my readers, especially those who take a pessimistic view of this, to us, new and weighty problem.

Just now, when there seems to be prevalent in our country a widespread pellagraphobia; when the unfortunate victim finds most hospitals closed to him, while he is *persona non grata* in hotels and boarding houses, and where even nurses seem alarmed at its mere mention, can we wonder that the knowledge of its presence fills the sufferer with dire forebodings?

When to the gastrointestinal and dermal discomforts, the painful or bizarre sensations accompanying the neuritis, and the temperamental infirmities betokening lack of poise is added a cheerless environment, shadowed by a sad-visaged medical attendant, and rendered still more murky by daily association with "Job's comforters," who with sighs and groans signify their hopelessness, how can we expect the beleaguered pellagrin to wage a winning fight against all these "powers of darkness?"

Let me admit that pellagra is the expression, first, of an apparent toxemia; later, of a combination of tropho-neuroses. In the first event, by proper regulation, the toxemia may be abated, and the patient recovers absolutely and permanently. Should this early recovery not take place, there ensue in time a destruction and obliteration of certain cells of the brain or spinal cord, or certain tracts of the central nervous system, and we realize that when this has occurred we cannot recreate these portions of highly organized tissue. The development of pathology has shown us that we might as well expect an amputated limb to grow again, as to restore to their pristine functions diseased or destroyed specialized cells. This self-evident fact, were it taken alone, would strengthen the position of the therapeutic nihilists, some of whom have pounced upon pellagra as

an exemplification of the uselessness of drugs, and the futility of curative efforts in this ailment.

I have known several self-appointed judges who with a cocksure air of finality, would pronounce the sentence of incurability upon pellagrous lesions, and in the same breath apply the terms "absurd" and "asinine" to any optimistic laborers, who had emerged from the "vale of tears" into the sunlight of hope.

Some of us are prone to forget Nature's wonderful powers of compensation. "Apparently even some regeneration may take place in diseased organs of highly organized type, if the patient's general condition is kept up to its highest point of nutritive efficiency. How far this may go we do not know, but observations show some marvelous examples of unexpected regeneration." (Walsh.)

Certain compensatory influences may be set in motion, and kept so, by drugs, but oftener they can best be sped along by keeping the patient's body built up and his mind cheered for a prolonged period, so that new centers may be educated while nature is getting accustomed to the loss of the useless ones. As one writer fittingly expressed it, "Though nothing can be done for the disease, much can be done for the patient." This, with some exceptions, may be applied to pellagra.

I have in several instances seen pronounced psycho-neuroses seemingly arise from discouragement, from sluggish conditions developing in their bodies as a consequence of lack of hope, and from the denial of air and exercise brought about by the settled gloom, which enveloped them when told that their disease was incurable.

In pellagra, as in many other complicated disease pictures, there are a multiplicity of intercurrent ills coming up at frequent intervals. Many of these can be promptly alleviated or cured, and by so doing the physician can produce in the sufferer a much more sanguine frame of mind, even if the main lesion is untouched.

It is along this line that the Eddyites, the mental healers and the quacks get their occasional spectacular results. They do not acknowledge the incurability of any ill, but by cheerfully promising a cure, by relieving some minor discomforts, and by replacing morbid in-

tropection with novel sensations, some invalids find their lot so much more tolerable, that they know they are bettered if not cured.

It is reasonable to believe that by suitable suggestion we can also delay, if not arrest, nerve degeneration, for a buoyant body and hopeful mind can present a firmer bulwark against the inroads of cellular destruction.

No more enlightening illustration regarding the beneficent use of psychotherapy can be adduced than in the history of the various "cures" for locomotor ataxia. The more startling and peculiar the method, the quicker the results, and each claim has been proved by the customary "cloud of witnesses."

One man builds a particular kind of shoe; another performs some simple operation on the nose or throat; another injects a wonderful serum, obtained at an "enormous expense"; or perhaps some Eddyite flimflams him with a series of incantations worthy of the dark ages, but at a fixed price per incantation. Straightway the tabetic feels so much better that he considers himself on the high road to recovery. The knee-jerks have not returned, the pupils do not react normally, the gait is still somewhat incoordinated; but, with a courage born of hope, the appetite improves, and with it the digestion. The other functions of the body wake up in sympathy, and, with renewed vigor, he congratulates himself on his partial, if not entire emancipation from the galling bonds of tabes.

In this instance, even though not a single cell has been restored, if new muscles have been re-educated, if compensatory functions have been established in new quarters, and if a measurable degree of comfort has been attained, who would gainsay the benefit of suggestion in such a case.

Thus, in pellagra, we are combating an unseen enemy. The etiology has not been settled, nor have constant pathologic changes been determined. While results at present seem to justify arsenical plus symptomatic treatment, no specific has been as yet decided upon.

In psychotherapy, however, we have a definite and helpful indication, appropriate at almost any stage of the disease.

When a patient first discovers, or is told of the presence of pellagra, he should be informed that very many have been cured, and that the best authorities consider it neither contagious nor infectious. He need not therefore be iso-

lated nor cast out from association with those he loves. He may also be assured that strict attention to hygienic and dietetic precautions, so that his body may be kept in the highest state of efficiency, will materially brighten his prospects. While taking cognizance of the numerous and easily managed intercurrent ills, so as to promote his comfort, we should at all times endeavor to instil a spirit of courage and optimism so that the higher psychic centers, untrammelled by fears or obsessions, may exercise their best influences over the lower centers, vegetative or otherwise.

It will demand both effort and tact on the part of the physician to keep this up, but the results will more than repay him. Even should signs of serious tropho-neuroses be evident, much can still be accomplished by cheerful suggestion and warm-hearted encouragement. I have in more than one instance seen the pella-grous manifestations halted, when a fatal issue seemed imminent, and, therefore, we cannot tell just when Nature may step into the breach, and check the onrushing cell degeneration, if we only keep the mental powers in a state of optimistic receptivity.

I do not believe it either right or just for a therapeutic nihilist or a constitutional pessimist to treat pellagra, or, for that matter, any other organic nervous disease. On the other hand, I affirm, from a considerable experience with this malady, that a kind and hopeful and persistent psychotherapy holds a worthy and tangible place in its management.

920-21 *Candler Building.*

NOTES ON OPERATIONS FOR HARELIP AND CLEFT PALATE.*

By J. SHELTON HORSLEY, M. D., Richmond, Va.

In a previous paper on harelip and cleft palate read before the Medical Society of Virginia in Richmond, October 27, 1911, I reported cases and showed photographs illustrative of results obtained. The object of this paper is to report further details of the technic of operation and after-treatment in such cases. The correction of these deformities is not only a blessing to the sufferer, but a godsend to the community. The deformity is objectionable to

*Read at a meeting of the Southwest Virginia Medical Society, at Pulaski, Va., June 28, 1912.

look upon, but the effort to talk is almost as painful to hear as is the appearance of these sufferers distressing to see.

It is rather difficult to see why more attention has not been paid to such obvious deformities, the correction of which saves the infant not only from the diseases which a baby with hare-lip and cleft palate is peculiarly susceptible to, but from a life-time of misery and sensitiveness should the child survive. It is notorious that children with harelip and cleft palate rarely attain maturity unless the deformity is corrected, and yet we sometimes hear the very peculiar doctrine that it is really better to let these little sufferers die than to attempt to save them. It is difficult to understand the logic of such philosophy, which if generally applied would really wipe out all efforts that surgery and medicine make to benefit mankind. There is just as much reason to let adults die from their diseases and afflictions without making an effort to save them as there is to allow helpless babies to perish without even attempting to correct their deformities.

In the paper already referred to (published in the *Virginia Medical Semi-Monthly*, December 22, 1911), I called attention to the necessity of accurately mapping out the flaps, of thoroughly dissecting the lip and nose from the cheek, and to the need of gentleness in handling the tissues. A double harelip can be repaired almost as readily as a complicated single hare-

underneath the nose. This type produces marked deformity, as is shown readily by reference to the accompanying photographs. (figures 1 and 2.) In such instances it is impossible to correct the lip satisfactorily without first remedying the bony defect. This can be done by dissecting the lip free from the bone, freshening the bone, and then partly fracturing it with stout forceps about one and one-quarter inches



Fig. 3—Baby H. Photograph about three weeks after operation. Note the symmetrical nostril on the left side which has been built up from the spread-out nose shown in Figs. 1 and 2.

from its end. Holes are drilled and the bone bent so as to make a symmetrical alveolar arch in front. The bone is then wired in this position. I have been using stout bronze wire and twisting the knot anteriorly up into the nose, as it will irritate the tongue if the knot is left in the mouth. It is best to correct fully the underlying bony frame work of the lip before attempting work



Fig. 1.



Fig. 2.

Fig. 1—Baby H, age about three weeks. Photograph taken just before operation. A very bad single hare-lip with protrusion of alveolar process and complete cleft palate.

Fig. 2—Another view of Baby H.

lip. I have had several cases of single harelip in which the cleft was to one side of the nostril, and the alveolar arch protruded almost directly



Fig. 4—Baby J. I., age 6 weeks. Single harelip and complete cleft of palate. Photograph taken about five days after operation showing method of applying straps to apply tension. The wound is dusted with boric acid.

upon the lip itself. The soft tissues should be dissected very freely from the bone, otherwise tension is apt to occur. The dressing after opera-

tion consists in merely dusting the wound with boric acid and in relieving tension by two strips of adhesive plaster which run from the side of the cheek and cross on the bridge of the nose. This also prevents the pressure on the wound

maxilla just above the alveolar process. An incision is made in the mucous membrane between the cheek and the alveolar process as it is important to get these rubber bands as high up on the jaw as possible; otherwise they simply

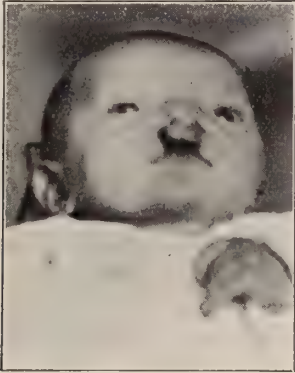


Fig. 5—Baby F., age 16 days. Double harelip and cleft palate with premaxillary bone. This photograph was taken one day before operation. Contrast this and Fig. 6 with Figs. 1 and 2, which show a single harelip and a different type of protrusion, but the deformity is almost as bad.

which is an objection to any apparatus that runs across the lip itself. Any dressing or plaster on the lip retains secretion and retards healing.

In cleft palate I now operate upon each baby within the first two or three weeks of its life if possible. Formerly I was inclined to defer operation until the child was eighteen months or two years old. I believe this is a mistake, as the bone is soft for four months of early life and can be moulded much more readily during



Fig. 6—Baby F. Another view. Note prominence of premaxillary bone.

the first few weeks than later on. In a child with a typical complete cleft of hard and soft palate and harelip, the procedure adopted is as follows:

About two weeks after the baby is born, small rubber bands are passed through each upper



Fig. 7—Baby F. Photograph taken about four months after operation.

pull down and pull off the mucous membrane of the alveolar process without really approximating the bone. After dissecting up the cheek from the bone for about half an inch a stout needle with eye at the point enters from the outside and well above the alveolar process and passes into the mouth about the margin of the cleft. It is then threaded with stout linen or silk and withdrawn. This is done twice on each side and results in two ligatures on each side with one end of the ligature hanging from the cleft and the other from



Fig. 8—Baby W. Photograph taken day before operation. The photograph shows the type of complete cleft of the palate with harelip and protrusion of the alveolar process, which has been alluded to in the text. This was treated as described in the text and the result is shown in the following photograph.

the point of entrance of the needle. The rubber band is then tied to the end of the ligature hanging from the cleft and drawn through, first on

one side and then on the other. In this way we have two rubber bands traversing the roof of the mouth. The bands are fixed by small plates, which are cut out of thin aluminum sheeting, such as used by dentists, and punched with smooth holes. These plates are quite small, being not more than three-quarters of an inch long. The rubber band is run through a hole



Fig. 9—Photograph of Baby W. taken the day before he left the hospital. Three operations had been done upon him. Note the full lip with the even and continuous line at the border of the lip.

at the end of the plate and tied to its fellow with linen or silk. The other ends of the rubber bands are placed through a similar plate on the other side and tied. Before tying, each band is pulled until it is moderately tense. After they have been drawn fairly tense and fixed in position, the plate is shoved up on the raw surface made by first incising the mucous membrane.

It is very important to have the plates well above the alveolar process, and in order to do this the needle must enter high up and emerge about the border of the cleft. If the cleft is a narrow one and the baby is not over two months old, the cleft can be drawn together in a week or ten days by this procedure. If the cleft is wide, it will be reduced by probably one-half and a subsequent operation is much easier. In eight or ten days these bands are removed, as the plates and bands will cause too much necrosis if left on too long. At this time the cleft in the alveolar process in front is corrected, as already indicated, by fracturing the process, freshening each side of the cleft and bending the process together and wiring it in this position. The lip is also fixed at this time.

If the child does well, the cleft palate is operated upon in two or three weeks. If, how-

ever, the child's nutrition is poor and he is not doing well, it is folly to operate, as no matter how well the stitches may be placed the tissues will not heal unless the child's resistance is good. The tissues of the mouth usually recover from the pressure of the plate and rubber bands in two weeks, while the wiring of the cleft in the alveolar process and correcting the harelip when the rubber bands are removed have so anchored the cleft in its narrowed condition that it cannot be readily pulled apart again by the child's crying.

I have used this procedure with much satisfaction on several babies. If the patient is older, efforts should be made to avoid infection as far as possible, not only by handling the tissues gently, but by the administration of urotropin for a day before the operation and then on alternate days for a week or ten days. It is much better to give it in large doses for a day or two at a time and then discontinue for a day or two than to give small doses continuously. The mucous membrane can also be cleaned off with boric acid solution and then wiped with 50 per cent. tincture of iodine. The latter antiseptic is too strong for young babies, but may be readily used in children over four or five years of age.

In all cases of cleft palate it is most essential to have the patient in an atmosphere that is as nearly dustless as possible. Probably no place can be worse than the ordinary hospital ward. It is notorious that hospital dust is exceedingly septic and in a hospital ward this particularly holds true. The child breathes in the septic dust, which probably infects the tissues, and no matter how carefully the flaps may have been placed in apposition they are certain to break down if infected. These patients should either be treated after operation in specially prepared rooms in a private home, or in a hospital where modern arrangements, such as vacuum cleaners, etc., do away with dust.

SOME RECENT DEVELOPMENTS IN THE TREATMENT OF SYPHILIS.

By H. H. HAZEN, M. D., Washington, D. C.
Clinical Professor of Dermatology, Howard University, etc.

As has already been stated by many writers, there have been three great recent developments in syphilology: first, the discovery of the causal

organism; secondly, the application of the complement fixation test to the diagnosis of the disease; and, thirdly, the therapeutic use of the organic arsenic compounds.

It has been experimentally proven that the spirochaetes are usually disseminated throughout the system before the chancre has clinically developed, and it has also been proven that the sooner treatment is started the better its chances for success. By means of the dark field illuminator or by use of various stains, notably Hastings's, the treponema can be recognized: it is no longer necessary to wait for the secondary symptoms to develop before being sure of one's diagnosis. Further, it has been shown that when either mercury or salvarsan come in contact with the spirochaete, they kill it.

At the Seventh International Congress of Dermatology and Syphilis, recently held at Rome, there was a general consensus of opinion as to the following facts: mercurial injection is the most efficacious way in which to administer the drug; next comes the inunction. Of the various mercury preparations for intramuscular injection calomel has the most marked curative effect, but has usually been considered as too painful a drug to use except on rare occasions. Lambkin has devised a method which renders its application no more painful than the injection of the salicylate. His formula calls for one part of camphor, one part of absolute creosote, and sixteen parts of palmitin. I have found that paraffin oil can be substituted for the palmitin. Burroughs, Welcome & Co. market this preparation as a "Vaporole" product. Next to calomel ranks grey oil, which is supposed to have a more lasting effect than calomel, and which is even better borne. This drug is now almost universally combined with salvarsan. The biniiodide can be combined with potassium iodide, or administered in olive oil. It is better borne than any other type of mercurial injection, but is not so efficient as the last two mentioned.

Iodides and quinine are uncertain: experimentally, potassium iodide does not kill the treponema, but may dissolve the fibrous tissue around the encapsulated organisms. Iodide is being less and less used in the treatment of syphilis, and never alone.

Zittmann's decoction, made with mercury, is still used by many of the continental observers,

and often with useful results, especially in the long protracted cases.

Neisser states that tartarus stibiatus has a strong spirilloicide action, and that clinically it may act splendidly, but that up to the present time it has not been sufficiently tested.

Neisser also thinks that arsenophenylglycinin 0.3 and 0.5 grm. doses, given intramuscularly is extremely useful: in fact, he has substituted it for intramuscular injections of salvarsan. Hallopeau thinks that it is too toxic to be safely used.

Atoxyl, arsetacin, and cacodylate of soda are not used abroad, nor to any extent in this country; the first two are dangerous, and the last is very uncertain.

Hallopeau is very enthusiastic over the use of hectine, and thinks that by its use he can abort a very large proportion of early syphilis. Hectine is the benzosulphoeparaaminophenyl-arsinate of sodium and is used in local injections around the chancre. On each of thirty consecutive days 0.2 grm. is injected. Six cases out of seven are thus cured: as a proof of this second infections may take place. Some cases have remained cured thirty-four months. But many syphilographers vigorously deny the efficiency of this method, and point out that relapsing chancres may occur, and that the so-called second infections are merely examples of this phenomenon. Several men report that intractable lesions may be favorably influenced by its use.

It is universally agreed that one or two doses of "606" will not cure syphilis, although all are agreed that when combined with mercury it is the best remedy at our disposal. The majority of observers are giving from four to six intravenous injections, combined with grey oil or inunctions, and are insisting that treatment must be kept up for at least one year. McDonough, of London, has brought out a most important piece of work upon the possibility of permanently curing syphilis by the use of salvarsan. He calls attention to the fact that many cases of latent syphilis do not show a positive Wassermann, but that when a provocative intravenous injection of "606" is given the reaction becomes positive in from seventeen to forty-eight hours. So long as an injection of salvarsan will cause the Wassermann to become positive so long is the patient uncured. He con-

pares the use of the drug to the use of gonococcus vaccine in low grade infections. The use of this vaccine will often set up an acute urethritis, but the injections must be employed until a urethritis no longer results. Just so intravenous injections of salvarsan must be employed until the Wassermann no longer becomes positive in from seventeen to forty-eight hours. He first gives three intravenous injections one week apart, and then as many subsequent injections as are necessary at about two weeks intervals. He finds that about six injections are necessary to cure a secondary case, and about eight or nine to cure a tertiary case. He invariably injects intramuscularly two grains of grey oil each time that he gives a salvarsan. Intramuscular injections of "606" are not allowable, because it is impossible to say just when the Wassermann will become positive following one of them. In certain cases where the Wassermann remains steadily positive in spite of continued treatment, it is useless to try to influence it, and it must be disregarded.

In general the intramuscular injection of salvarsan has been given up, largely because of the pain produced, and partly, no doubt, as a reaction against the serious results often produced by the Weichselmann subcutaneous method. In America a large number of men are using an oily media in which to inject the drug. From my own work on this line I feel that each injection should be made in a different spot: the lumbar muscles are very convenient sites for injection. Schamberg has administered "606" by mouth, and has found that while the drug was not toxic, neither was it therapeutically active. Bagrow has tried it by rectum, and reports good results. In giving an intravenous injection of salvarsan it has been found that there is no severe reaction following the injection if the water used was freshly distilled: in other words the febrile reaction was in reality a protein reaction due to the presence of dead bacteria in the distilled water.

The very recent introduction of neo-salvarsan by Ehrlich has given us a salvarsan that is soluble in water, so that both the intravenous and intramuscular injections are in a fair way to be very much simplified.

The usefulness of the Wassermann reaction has been severely challenged of late, and the following points have been made against it. It

has been frequently noted that when the same serum was sent to a number of different laboratory men different reports were frequently turned in. There are a number of reasons for this: firstly, the reaction is a difficult one, and requires good technique, and plenty of freshly standardized material; secondly, it is often difficult to say whether a case is faintly positive or merely suspicious—in other words, the interpretation of the reaction requires much skill. It is a well known fact that many cases of latent syphilis give a negative reaction, and at least two of my cases with the most strongly marked tertiary manifestations have given negative reactions. A positive reaction usually means a great deal, but a negative reaction is of very little value: McDonough has certainly demonstrated this in the work that I have just quoted. It is very doubtful if a negative reaction ever justifies one in discontinuing treatment, though a positive reaction is an imperative demand for more treatment, with the single exception of the class of cases that McDonough excludes.

Noguchi has recently succeeded in cultivating the *treponema pallida*, and finds that with dead cultures he can produce a reaction very similar to the cutaneous tuberculin reaction: it is still too early to say how useful this will be.

THE DOCTOR AND THE LAWYER.*

By Hon. HENRY J. BOOTH, Columbus, Ohio.

Attorney for the Norfolk & Western Railway Co.

Mr. Toastmaster, Ladies and Gentlemen:

Permit me to express my grateful appreciation of the compliment implied by the invitation to break bread with distinguished representatives of a great profession gathered from the domains of Virginia and her daughters—one lawyer as the fly in the medical ointment. There ought to be some newspaper men here, and perhaps there are. The press has more influence on railroad management than the Interstate Commerce Commission. At least that is the inference to be drawn from a story told by Martin Clardy, of St. Louis, General Solicitor of the Missouri Pacific and Iron Mountain Railway. He says that one day an irate shipper entered the general offices of a railway company and asked:

*Address delivered at Cedar Point, Ohio, June 18, 1912, before the Association of Surgeons of the Norfolk & Western Railway Co.

"Where is the general superintendent?"

"Out on the road," was the reply of the clerk.

"Where's his assistant?" said the angry shipper.

"Gone to the ball game," answered the clerk.

"Then where's the vice-president and general traffic manager?" shouted the shipper.

"Gone North for the summer," replied the clerk.

"Well, then," demanded the angry caller, "who in thunder is running this railroad, anyway?"

"Oh! if that's what you want to know," coolly replied the clerk, "it's the newspapers. If you'd asked me, I'd have told you that in the first place."

Since the memory of man runneth not to the contrary, it has been said that fools rush in where angels fear to tread. The advice of a lawyer is not always good, even when paid for. And, as a general rule, he should not volunteer it. But permit me to make a suggestion—for which no voucher is expected—that you reserve a place on your program next year for a prominent journalist and assign to him the subject, The American Railroad. In a heart-to-heart talk by such a man, addressed to men who know, he would doubtless remind you that American railroads are the products of private enterprise, and, as an honest confession is good for the soul, admit that, notwithstanding high wages and the high cost of materials and supplies, the American railroads furnish the best service and at the lowest rates in the world. Such an address coming from a disinterested source and given due publicity would carry more weight than a ream of ordinary politically inspired editorials.

The American railroad has done more to develop the country than any other one great business enterprise. And yet no other has been so recklessly and persistently vilified. Others help to *write* tariff bills. The railroad does *not*. Others *follow* the flag of development. The railroad engineer *carries* that flag. Wherever railroad enterprise has sought to open up a *new artery of commerce* its pioneer trains have been run under a fusillade of bullets from political sharpshooters. And the older lines have not fared much better. In the worthy task of bringing the railroads and the public to a better understanding much has been accomplished. Sentiment is changing. Within two years after the

vox populi clamored for the official head of A. J. Cassatt it approved the erection of a monument in his honor. But it's a pity that a great man, who is also a public benefactor, must die in order to be appreciated. I once heard a judge of the Supreme Court of Ohio say that, speaking for himself, he preferred more taffy and less epitaphy.

Permit me at this point to administer a sedative. It will consist of a few words of explanation. The situation is this: Your Committee of Arrangements is strictly up-to-date. It knows all about the initiative, the referendum, and the recall. When the chairman of that committee first called on me, he invited me to read a paper. That was the initiative. A few days later he suggested that I deliver an address. That was the referendum. At our next interview it was decided that I should follow the address of the president—although it seems that I am preceding him—with a few post-prandial remarks. That was the recall. It worked beautifully. The *pieces de resistance* will be served later. I am merely the umbilical cord between the executive and medical departments, liable to be severed at any moment. Hence my remarks must be in a lighter vein.

My subject, *The Doctor and the Lawyer*, is very elastic. It covers a multitude of sins and possibly some virtues. The hand of every one seems to be against the lawyer. For instance, it is said that he works hard, lives well, dies poor, and goes to —. On an occasion somewhat like this a member of your profession paid his respects to mine in these lines:

"We're just as wise as these lawyer guys,
And, strictly between us two,
The lawyer guys are not as wise
As they try to prove to you."

When men are sick in body they send for the doctor, and when they are sick in pocket they go to the lawyer. So your profession and mine are necessary evils. It is said that the doctor burys his blunders and that the lawyer sends his to the scaffold or to the electric chair, and by that means both of them diminish the number of mal-practice suits.

And we are alike in other things. For instance, ours are the only two learned professions that are strictly regulated by law. The statutes and the National and State Associations, representing medicine and the law, are

making it more difficult from year to year to enter either of our professions, and yet, it is said, that fewer people than ever before are permitted to die a natural death. Yet we are all beholden to the doctors, for they help bring us into the world and escort us out of it.

No other professions are so closely associated as ours. The frequency with which they must seek each other's assistance would be amazing to the general public if the facts were more fully known. Upon this subject the dockets of our courts speak eloquently and conclusively. Each must admit the other to its own domain. Indeed, much of the territory of both is occupied jointly if not in common. Whenever a judicial inquiry involves an issue of legal responsibility, testamentary capacity, or physical injury with its concomitant of malingering, both the doctor and the lawyer occupy leading roles in the cast. And so it is whenever there is a meeting of the three indispensable characters in a malpractice case, a mercenary patient, a charlatan in medicine or a jealous competitor, and an ambulance-chasing member of the bar. In this case, also, a lawyer is called to the rescue. Indeed, so closely are they associated in a great number and variety of medico-legal investigations that the essential qualities of each profession and the characteristics of its members become the common knowledge of both. And it is a tribute to both that they live on terms of mutual amity and respect.

When, as in this instance, we serve the same great corporation, although in different but closely related departments, it is not strange that we meet on terms of the most cordial good fellowship. And the time will come, perhaps, when the doctors and lawyers of this great railroad system will annually hold a joint session which will serve as a clearing house of mutual acquaintance, confidence, information, and exchange of views.

Your most important sessions will be held this evening and to-morrow. I regret that I cannot attend both of them, especially if there is to be any discussion of traumatic neurasthenia and malingering. My position on the program forbids me to talk shop. But, possibly, in order to get the lawyer's point of view, you will excuse me for submitting a few axioms derived from personal experience in a large number of cases resting mainly on the claim of *traumatic neurasthenia*.

1. Such claims are much more frequently made in connection with injuries to women than in cases brought by men.

2. The symptoms are far more common and persistent when the accident results in litigation than when it does not.

3. When such symptoms are made the basis of a claim for damages, they almost invariably disappear when the claim is settled or the litigation ended.

4. Such symptoms are far more persistent when the patients are under known observation than when they are not.

5. Neurasthenic patients are extremely susceptible to the suggestions of physicians, friends and attorneys, and sometimes the border-line between the conscious and unconscious acceptance of such suggestions is extremely difficult to define.

6. Osteopaths do far more to remove such cases from the domain of "the vague, the mysterious and the obscure," and bring them into the light of real scientific diagnosis and treatment than the old-line physicians themselves. Hence, lawyers who defend, charged frequently with attempting to thwart justice, naturally anticipate some astounding disclosures when an osteopath takes the witness stand, for, with their thorough and comprehensive knowledge of anatomy acquired *outside* of the class-room, the dissecting-room and the hospital, and their deftness of touch and a skill in diagnosis but little short of the miraculous, they find the causes of symptoms which puzzle you, in nerves gone astray, contracted muscles, dislocations never suspected even by the patient, and *mirabile dictu*, the most conclusive evidence of large and prominent nodules resulting from numerous fractures anywhere near the supposed seat of the injury of which an X-ray examination furnishes no evidence at all.

Our professions are alike in still another very important respect. It is claimed that we are so ultra conservative and so bound by the toils of precedent as to thwart the legitimate demands of enlightened progress. And they say of yours that it seeks a monopoly of the healing art. So you have arrayed against you, directly or indirectly, the adherents of the Pratt school, whose curriculum requires an attendance of but one week, the clairvoyants who delude the credulous clandestinely or by sufferance, the Christian scientists, whose status in the practice is

not yet fixed because it is claimed that they do not practice medicine, and the osteopaths, who have acquired by statute a limited status in Ohio and in several other States. With these new cults and others like them your profession is *persona non grata*, because you insist that knowledge should be a condition of the right to practice.

But your critics assert that you are inert, like the Bourbon dynasty, which forgot nothing and learned nothing. Claiming to be progressive, they wield a torch to destroy, not a hammer to build up. They would not leave us even quinine, or the multiplication table, or the Lord's prayer, or the Sermon on the Mount. Fortunately, the average American citizen believes in holding fast to that which is good, and nine hundred and ninety-nine out of every thousand of our people still go to you whenever life or health is at stake.

Of the merits of the proposed reduction of the *materia medica* the layman knows nothing. It is beyond his ken. I sometimes wonder whether doctors know how implicitly their patients trust them. And that includes the community at large, for at one time or another we are all your patients.

Is cancer a local disease or a blood disease? Your specialists disagree. When will tuberculosis be brought under more certain control? We all have an abiding faith that it will be, but no one can tell how or when. You have many other important problems of which the layman knows nothing. Surgery has made wonderful strides. And well we may say of the specialist that "by weekly and monthly and yearly succession his number increases beyond all expression." Nor is the general practitioner a laggard in his profession. Permit me to tell your wives what you may be too modest to tell them, and that is that your profession is the most progressive in this progressive age. Of course, you have not learned it all. In some fields of investigation you are only at the threshold of knowledge. A few years ago an applicant for admission to the bar was asked this question, "Into what two principal classes is the law divided?" His answer was, "Into the known and the unknown, and the latter greatly predominates." Needless to say that, being found worthy and well qualified, he was admitted to practice. If the same statement were made concerning some departments

of medicine now, it might not be considered a slander twenty years hence. By that time the statute of limitations will run in my favor.

But what shall we say of the charge of "slavery to precedent" made against the lawyer? It is a truism to say that when a lawyer tries his own case he has a fool for a client. In the face of that maxim, permit me to say that the hands of courts are tied more by statutes than by mere precedents, and that Congress and our State legislatures do not keep pace with our bar associations in their efforts to improve the administration of justice.

Our annual reports are replete with valuable suggestions which have been ignored. Lack of time will permit the mention of but one instance of hundreds that might be cited. When the *Titanic* disaster occurred no suit could be maintained in the United States admiralty courts for the death of a human being. Hence there was no redress for that appalling loss of life. When this was discovered by the public, the lawyers were condemned as usual. How often they have attempted to remedy this grave defect in our remedial law I do not know. But it is a matter of record that nearly three years ago the American Bar Association during its session at Detroit recommended such a law, that the bill was afterwards introduced in Congress, that it died of inanition in a pigeon-hole, and that it was not even deemed worthy of an autopsy until the subject was taken up again at the annual meeting of the Maritime Law Association in New York on the third of last month.

We are living in the days of the iconoclast, when it is almost a case of *lese majeste* to attempt to draw inspiration from the past. Therefore, let me enter a plea of confession and avoidance. For, in your presence, I cannot forget the historic commonwealths from which you come—the five States traversed by the Norfolk and Western Railway, whose combined territory is far less than that of the Lone Star State. To them belongs the distinction of furnishing the most eloquent orator of the colonial period, the author of the Declaration of Independence, the commander of the Revolutionary armies, the genius which framed and interpreted the Federal Constitution, the greatest generals on both sides during the Civil War, sixteen of the twenty-seven presidents of the United States, and

four of the seven candidates at the present time for the highest office in the gift of man.

Have not the men of such a territory as that brains enough to operate and develop a great railroad system and to successfully combat assaults on one of the greatest industries in the United States, made frequently by reckless demagogues who would confiscate the property or diminish the efficiency of our great railroad systems with no better motive than that of the man who despoiled the Temple of the Ephesians to make for himself a name in history? This tendency to handicap business enterprise by drastic and ill-considered legislation, or by so-called "remedies," some of which do far more harm than good, reminds us of the fable of the Chinaman who kept his pigs in his hut and burned down his house whenever he wanted roast pig. In some communities it has almost acquired the characteristics of a disease.

The sooner we apply the principles of anti-sepsis and public sanitation, the sooner will the virulence of the disorder abate. It thrives on ignorance and cowardice, and yields to a persistent application of intelligence, common sense and courage. These remedies can be applied by the members of both of our professions. Already there is a turn for the better, but the utmost care and diligence must be exercised to prevent a relapse.

There can be no shadow without light. The darker the shadow, the brighter the light, and the higher the sun the smaller the shadow. The danger was real. Possibly it was over-estimated. A victory won looks easy. A danger diminishing may seem trivial. In mid-stream a river may look large and dangerous. From the farther shore it becomes the Rubicon which Cæsar crossed, only a creek.

You have doubtless heard of the man who expressed the utmost indifference concerning his ultimate destination because he had "friends in both places." As one presidential convention is in session this week and another will be next week, Virginia and her daughters being conspicuously represented in "both places," permit me, in conclusion, to submit the following non-partisan paraphrase concerning the present political situation:

No matter whom they nominate
There still are those who'll speculate;
The doctor still his calls will make,
The lawyer still find wills to break;

The farmer still will sow and reap,
The millions still will work and sleep;
The world will sorrow and be gay,
And youth will wonder, wish and play;
The sun will shine, the winds will blow,
And flowers bloom and rivers flow;
The game of life will still proceed
And some will flourish, others need;
Though favorite sons are always great,
No human motive will abate,
No matter whom they nominate.

1200-1210 *Eight East Broad Street.*

THE SOCIOLOGIC FACTOR IN MEDICAL PROGRESS.*

By WILFRED M. BARTON, M. D., Washington, D. C.
Professor of Therapeutics and Materia Medica, and
Associate Professor of Medicine, Medical Department of Georgetown University.

Reverend Father Rector, Colleagues of the Faculty, Members of the Graduating Class, Ladies and Gentlemen:

Before beginning my address, which I shall make very brief, I think an explanation would be proper. I have not been selected to deliver an address to the graduating class because I possess any special qualifications. We have been in the habit in our medical Faculty, at least since I had the honor of joining it, of taking our turn, as it were, in the matter of delivering the address to the graduating class. This is my turn tonight and after it is over I shall not again appear to molest you in the natural course of events for some eight or ten years.

An orator is said to be a man who says he did not expect to be called on and then refuses to be called off. I am not an orator, as you will amply determine, and I shall try not to talk so long that you will be reminded of the man who stepped into a church while the sermon was in progress and sat in a back seat. After fifteen minutes he leaned forward and asked a member of the congregation, "How long has he been preaching?" "Why," said the member, "I think about thirty-five years." "Then," said the stranger, "I think I'll wait, for he must be nearly through."

Members of the Graduating Class, the time has come for a parting of the ways and I am delegated by that Faculty with which you have been associated for four years to deliver a for-

*Address before the graduates in medicine at the commencement of Georgetown Medical School, June 13, 1912.

mal message to you from them of sympathy and encouragement.

It is not an easy matter to determine the scope for such an address. Shall it be a retrospect of those labors which for four years you have so successfully prosecuted in the medical school or shall it be some optimistic prophecy of the future? Shall it consist of an analysis of the forces both mental and moral upon which your well-earned triumphs have been raised, or shall it include merely a set of rules of advice which if diligently followed shall guarantee you mundane success in the practice of medicine?

All of these subjects and many more of the same genus have constituted the themes for many an address upon occasions of this kind. But, while I admit the advantage, even the necessity, on the part of the young physician and his advisers to dwell upon these aspects of the situation, I am not prepared to give to them as great an importance as many are inclined to assign.

There are, it is true, some practical problems of great weight which each and every one of you will be called on in the near future to decide and your decision of these questions will have a considerable influence in shaping your future careers. Such questions as these for example: "Shall I compete for a hospital internship; if so, where and for how long?" Some of you have already answered this question decidedly in the affirmative and have obtained by your scholarship those envied prizes. "Shall I take up post-graduate studies; if so, shall it be at home or abroad?" "Shall I take my State board examination at the earliest opportunity, or wait?" "Shall I begin to practice now; if so, where shall it be, in the city or the town, in the east, west, north or south?" "Shall I go into the government, State, municipal or educational services?" These and a multitude of other questions await your earnest consideration. But, however, each and all of you may decide the personal questions I have propounded, when you leave the fond portals of your Alma Mater, or wherever your several paths may lead you in your professional perigrinations, your teachers are certain that the honor and prestige of the medical school is in worthy hands when entrusted to your keeping.

In my judgment, however, these things, as

serious and important as they are, sink into insignificance in comparison with other questions of larger scope with which you are now confronted. And this for the reason that with respect to those questions which I have enumerated and all others of a similar, if I may say, purely environmental character, no matter how you may answer them, they affect only your geographic situation and have no necessary bearing upon your relation in a broader sense to those great influences of a sociologic and ethical character which are moulding and forming the progress of the human race of which our medical profession forms its little but important part.

So I shall take the liberty this evening of selecting for the subject of my brief remarks a topic of general rather than of special interest to you. I shall speak to you of the sociologic factor in medical progress.

Permit me to affirm immediately that we must understand sociology in this connection in its widest connotation and not in the narrower sense of political science or social economy.

Our conception at the present day of the meaning of sociology is different from the individualistic conception of our forefathers. Our conception of it is founded almost entirely upon a deep principle which must be understood and applied before we can gain any adequate notion of the real meaning of sociology, or successfully apply the principles of the science to the interpretation of medical affairs. The principle referred to may be enunciated as follows: The development of lofty ethical principles in human society does not take place by virtue of any force which is inherent in the individuals who compose it. The power is in reality external to the individual and resides in the social process itself. In other words, the social process is acting on the individual and in doing so, is primarily evolving in him, not the qualities which perfect him as an individual and contribute to his personal efficiency in the struggle for existence with his fellows, but is developing within him the qualities which contribute to the efficiency of society as a whole, in the conflict through which it is passing towards a more organic and lasting perfection.

This is the noble conception of the individual and the social process which is in evidence today and it is thoroughly in harmony with the high-

est spiritual and religious feeling inherent in man.

The old idea of the supremacy of the State and of the individual, founded upon military power, is giving way to a higher type of civilization, the most fecund germ of which was introduced into the world with the spread of Christianity. A wider conception of duty and responsibility to our fellow creatures is the basic principle thereof. The individual lives, not for himself alone, not to strengthen and enrich himself at the expense of his neighbor, not to develop within himself those qualities of strength or craft which shall enable him to outstrip his competitors in the struggle for existence. His life has a nobler meaning. He is to develop those qualities which shall contribute to the nobility and happiness of men, to the stability and perfection of society, and, if at times, a survey of the world may tend to dampen our enthusiasm and belief in this idea, we must remember that a process, so infinitely noble in its purpose, must likewise be infinitely deliberate in its growth.

This being the meaning of sociology in its widest sense, our expression, the sociologic factor in medical progress, will refer to the relations, which such a conception of the meaning of the social process must have upon the phenomena which are generally regarded as evidence of medical progression. You can readily appreciate the enormity of the task of doing justice to such a subject, should it be seriously attempted. To be adequately performed it would require a rare combination of sociological and medical information and talent. I do not desire to insinuate that I possess this combination, nor would this be the time or place to exhibit it, if I did. My object is to cite you the great principle upon which such a study would have to be based. I leave it to you to examine into the state of your own beliefs, to scrutinize your own behavior, and that of your confreres, and to attempt to determine for yourselves, whether those manifestations of medical activity which are usually considered as evidences of progress, are in reality, so. I can only say for your guidance, that the final test, as to whether they are, or are not so, will in my judgment be, to determine, whether they are in harmony with the highest conceptions of sociology, the great principle of which I have

attempted to describe, or whether they are in opposition to it. Whether, in other words, they tend to develop in the physician those attributes which contribute to the efficiency of society as a whole, or whether they tend to aggrandize his individualistic and militant instincts in his social and professional relations.

It is in the light then of the great sociologic principle I have enunciated that the student of medical progress should attempt to judge the aims and tendencies of modern medicine. He will find that many of these tendencies are progressive in the highest sense, because he can trace in them, the true spirit of individual subordination and altruism. In other instances, he will as readily perceive that a given movement is retrogressive, or reactionary, because in it, he can plainly see an opposite tendency.

But the principle in order to be used must be recognized and what I wish merely to contend for is the recognition by you of this great social force which is sinking the interests of individuals, as individuals, in those of society as a whole. The physician, as a member of society, is being likewise affected and we live in an age when some of the results of this movement, as it relates to medicine, can be plainly seen.

We see medical practice becoming less and less an opportunity for individualistic aggrandizement, and more and more democratic and communistic.

We see the continued development of medical specialism, a tendency which is undoubtedly in the direction of individual subordination, though it may appear at a superficial glance to be otherwise.

We see the passing out of the old medical aristocracy and the substitution of a purer spirit of democracy in the relations between doctor and patient, between professor and student.

We see a tendency towards the disappearance of the old superstitious reverence, which clung about the physician of the past. The doctor has become more of a mortal, working among mortals. He is no longer an aristocrat, an egotist, a virtuoso, but only a simple worker, laboring without mystery or sham, with the tools given him by Providence for the relief of suffering mankind. The knowledge, which he possesses, he no longer monopolizes. The knowledge of the world today is spread broadcast as never be-

fore for those who have intelligence to receive it.

All these things are tending to lessen the efficiency of the doctor, as an individual, in his so-called struggle for life among his fellows, but they are immeasurably increasing his social efficiency along economic and ethical lines. This is true progress. But, you may ask, can it be true progress? Is it not rather a degenerate impotency, which is coming over the medical profession? What about the cults, the lay movements in medicine, Christian Science, the New Thought, the Emmanuel Movement? Are these not merely gross manifestations of social charlatanism? Shall we not unite against these things, because they are bad?

To all these questions, I would say, "Wait and think." "Do not be hasty." Analyze them first before you sneer at them, certainly before you leap at their throats, otherwise you may find yourselves involved in a combat beyond your strength; and you may go down in ignominious defeat.

These great movements are not without a great social meaning, my friends. They are but the natural reaction against the individualistic and unsocial tendencies of medicine during the past few centuries.

Yes, I may say against the materialism of our forefathers. We cannot deny, if we would, our tendency towards materialism. For myself, I cannot deny that that has been my tendency. It has come to us as a heritage of the stupendous developments we have received from the laboratories, the operating room, and the dead house.

The cults will not last, because they are not built upon an entirely sound and certainly not upon a scientific foundation. But they will do one good thing before they go and this, I believe, is their principal function. They will teach the physician, within the reach of their influence, the importance of mental, moral, and spiritual facts in relation to health. It has taken a mighty social convulsion to move us, but the movement is being done and we will be all the better for it.

The result will be progress, because it is in harmony with the great sociologic principle I have made the basis for my theme. It may result in a still greater subordination of the physician, it may lessen his autonomy, injure his pride temporarily, but it will increase his

social efficiency and will, therefore, constitute progression.

I believe I have consumed my allotted time and, perhaps, a trifle more. I have not given you a single item of practical information. I have not told you where or when to settle, or how to make money. In leaving these things aside, there may be some who will consider me recreant in my duty. But you need not worry. It will not make much difference where you settle, if you are happy and you are sure to make enough money, provided you are not too ambitious.

In conclusion, there are two words, which I desire to give you, with which you are probably not familiar, and which represent an idea I would like to convey. One of these is opsismathy; the other is opsigamy. An opsimatist is one who begins to study late in life. You have shown by your record that you do not belong to this category. An opsigamist is one who marries late in life. See to it that you do not belong to this category.

Proceedings of Societies, Etc.

AMERICAN PROCTOLOGIC SOCIETY.

Reported by LEWIS H. ADLER, Jr., M. D.,
Philadelphia, Pa.

The following is an abstract of the principal papers read before the American Proctologic Society at its meeting in Atlantic City, N. J., June 3-4, 1912, an editorial note of which appeared in a former issue of the *Semi-Monthly*:

Post-Operative Care of Rectal Cases.

By WM. M. BEACH, M. D., Pittsburg, Pa.

Success in the solution of proctologic problems is measured by the degree of perfection in the restoration of functional conditions involved. We must remove the disease, but it is quite as important that we have a care to vouchsafe to our patient perfect function.

Post-operative developments that need our attention are:

1. The disturbance of the nervous system.
2. The disturbance of the vascular system.
3. Digestive derangement.
4. Local conditions.

Post-operative neuroses manifest by (a)

shock, (b) nervousness, (c) pain, (d) sphincter-
algia, (e) retention of urine.

Vascular aberrations are shown by (a) hemorrhage, (b) infection.

Gastro-intestinal derangements are (a) nausea, (b) constipation, (c) ampullar impaction.

The local care of wounds should be inspected daily by the operator.

If patients are given proper post-operative care, their dread of radical cures would quickly subside, and rectal surgeons would escape untoward sequelæ they may be compelled to record.

Patulous Anus: Its Clinical Significance.

By ALFRED J. ZOBEL, M. D., San Francisco, Cal.

The condition of patulous anus results from an abnormal loss of tone in the sphincter muscles, which may be due to either a fault intrinsically within the muscle, or to some disturbance in its nerve supply. When purely muscular the cause may be a direct injury to the muscle; an infiltration by a malignant or a sphyilitic growth; a participation in a general muscular weakness, or the presence of a foreign body in the rectum which prevents the muscle from completely contracting. When the nerve supply to the sphincters is at fault the causative lesion may be either central or peripheral.

Complete fecal incontinence does not necessarily follow when the anus becomes patulous. The external spincter, when but slightly affected, sometimes is assisted in performing its function by an extra effort of the will and through augmenting the muscle's action by strongly contracting the glutei muscles and bringing them together.

A brief report of a few very interesting cases of patulous anus is given to illustrate the different causes of this condition; among them being a case of infiltration of the sphincters by a carcinomatous growth low down in the rectum; a case, the result of pederastic practices; a case, the result of a participation in the general alcoholic neuritis; cases where it occurred in low intussusception of the bowel in children; and two cases where it appeared as one of the early signs of locomotor ataxia.

The Surgery of Colonic Constipation.

By LOUIS J. HIRSCHMAN, M. D., Detroit, Mich.

After presenting the histories, radiographs and reports of operative treatment of thirteen

cases of obstipation due to colonic obstruction, dilatation, stricture and adhesions, Dr. Hirschman has formulated several principles in dealing with his cases requiring colonic surgery. They are epitomized in the following conclusions:

1. Most cases of chronic constipation are colonic in origin and many are obstructive in type.

2. Many cases of so-called chronic constipation are therefore really colonic obstipation.

3. Many cases of colonic obstipation suffer from chronic dilatation of the colon with or without ptosis.

4. Radiography is a most vital necessity in the diagnosis of all cases of chronic interference with bowel function. Its negative value may be greater than its positive.

5. A chronically, over-distended colon, whether adherent or not, never again becomes a normally functioning bowel.

6. Intestinal adhesions usually tend to recur in increased intensity and adhesions only cause symptoms when put under stress or tension.

7. The prevention of tension in physiologic rest to the affected organ and colonic rest is obtained only by colectomy, colostomy, or exclusion.

8. Colectomy as advocated by Lane is an operation seldom advisable and has many obvious objections from the standpoint of patient and physician. It is too grave a procedure to be undertaken except in the most aggravated cases.

9. Strictures, neoplasms, and other obstructions should be removed by excision of the diseased tissue and lateral anastomosis of the bowel.

10. Exclusion by ileo-colostomy is safe, easy to perform, and most satisfactory in the restoration of normal peristalsis, and consequently normal health.

11. Results speak more eloquently than words. After an experience with nearly fifty cases requiring exclusion or resection of the colon for obstructive constipation with but one failure, I feel fully justified in recommending it to your careful consideration in all cases of aggravated colonic obstipation, whether congenital, post-operative, or dependent on some mechanical obstruction or narrowing of the bowel.

Valvotomy.

By GEORGE B. EVANS, M. D., Dayton, O.

This paper dealt with valvotomy as a factor for the relief of proctitis, of obstipation and

constipation, of distinct and isolated ulceration of the distal side and adjacent to the valve, as also a factor in the elimination of bladder and prostatic symptoms reflexly.

The location of the valves was considered. Every case of valvular trouble is accompanied by pathological changes in the valves, and if in the valve, then in the adjacent tissues.

Valvular obstructions are prolific of more trouble than we give them credit for. They are causative factors in the production of obstipation in a large per cent. of our cases.

Valvotomy is a justifiable operation, as it not only relieves obstipation and constipation, but often causes reflex and neurasthenic symptoms to disappear; frequently ameliorates and even cures proctitis, and by virtue of the drainage it secures, lessens the tendency to toxemia from intestinal origin.

Observations Upon the Relationship of Tuberculosis to Peri-Rectal Suppurations.

By COLLIER F. MARTIN, M. D., Philadelphia, Pa.

The author has found pulmonary tuberculosis so frequently associated with his cases of peri-rectal suppuration that he determined to report a consecutive series of cases with findings.

The report comprises 376 consecutive cases, 75 per cent. being males, and ranging in age from 7 months to 87 years. The majority of these cases (322) occurred in the most active period of life, from 20 to 60 years.

He divided his cases into four major groups: the actively tubercular (144 cases), the chronically tubercular (68 cases), the phthisenoid (20 cases), and those patients in apparently good health (55 cases). This would indicate that at least 212 cases or 61 per cent. were cases of known tuberculosis.

There were 309 operations performed on 306 patients, under various anesthetics; spinal anesthesia 145 times, ether 54 times, and local and other anesthetics on the remaining. He chose spinal anesthesia where no other preference was expressed by the patient or the attending physician, on account of the associated tuberculosis.

Following these cases for the past four years he has traced thirty-seven deaths, of which thirty-four died of active tuberculosis or its complications.

The abscesses or fistulæ in most of these cases

could not be classified, from their appearance, as being locally tuberculous. Where the tubercle bacillus was easily recovered from the tissues or discharges there was usually a very active pulmonary infection present.

The writer believes that the usual explanation of the association of pulmonary tuberculosis with rectal suppurations lies in the fact that any pulmonary lesion, however small or inactive, may so alter the patient's vital processes and so lower the opsonic index as to make him particularly susceptible to pyogenic invasion. The same may be said of pyogenic infections in general, but the peculiar anatomic conditions existing in the rectum and its very active physiologic function makes this a fertile region for external and internal trauma with subsequent inflammation and infection.

Traumatism is considered to be the chief active factor in impairing the integrity of the tissues.

The writer emphasized the fact that a careful lung examination should be made in all cases of peri-rectal suppuration. He also made a strong plea for a careful and extended supervision of the patient's general health for a long period after all surgical treatment had been discontinued.

The vital consideration in these cases is not the question as to whether or not the local lesion is tuberculous, but has to do with the presence or absence of active or latent tuberculosis in the patient, and his chances of having good general health after surgical intervention.

(To be Continued.)

Book Notices.

Practical Medicine Series. Under General Editorial Charge of GUSTAVUS P. HEAD, M. D., Professor Laryngology and Rhinology, Chicago Post-Graduate Medical School, and CHARLES L. MIX, A. M., M. D., Professor Physical Diagnosis, Northwestern University Medical School. Vol. III. Eye, Ear, Nose and Throat. Edited by CASEY A. WOOD, C. M., M. D., D. C. L., ALBERT H. ANDREWS, M. D. and Gustavus P. Head, M. D., 358 pages, \$1.50. Vol. IV. Gynecology. Edited by EMILIUS C. DUDLEY, A. M., M. D., and C. VON BACHELLE, M. S., M. D., 228 pages, \$1.25. Series 1912. Chicago. The Year Book Publishers. 12 mo. Series of ten volumes per year, \$10.

The present volumes are up to their usual standard. For the limited space at their com-

mand, the editors have abstracted papers from representative journals bearing on the largest number of subjects possible. When deemed advisable, they have appended observations on or criticisms of the articles. These books are always interesting to the busy practitioner for the condensed form in which they present their subject matter.

Progressive Medicine. Edited by HOBART AMORY HARE, M. D., Professor of Therapeutics and Materia Medica, Jefferson Medical College. Assisted by LEIGHTON F. APPLEMAN, M. D., Instructor in Therapeutics, Jefferson Medical College. Vol. XIII, No. 4, 1911, 326 pages, and Vol. XIV, Nos. 1 and 2, 1912. 377 and 391 pages, respectively. Lea and Febiger, Philadelphia and New York. 8 vo. Paper. \$6 per annum.

Progressive Medicine is true to its title, containing as it does a digest of advances, discoveries and improvements in the medical and surgical sciences for the quarter preceding date of issue for each number. Volume XIII, Number 4, deals especially with Diseases of the Digestive Tract and Allied Organs, the Liver, Pancreas and Peritoneum; Diseases of the Kidneys; Surgery of the Extremities, Shock, Anesthesia, Infections, Fractures and Dislocations, and Tumors; Genito Urinary Diseases; Practical Therapeutic Referendum. Volume XIV, Number 1, considers Surgery of the Head, Neck and Thorax; Infectious Diseases, including Acute Rheumatism, Croupous Pneumonia, and Influenza; Diseases of Children; Rhinology and Laryngology; Otology. Number 2 of the same volume treats of Hernia; Surgery of the Abdomen, exclusive of Hernia; Gynecology, Diseases of the Blood; Diathetic and Metabolic Diseases; Diseases of the Spleen, Thyroid Gland, Nutrition, and the Lymphatic System; Ophthalmology.

We have before had occasion to commend these volumes as a work of much worth, and it is our belief that a regular subscription to each series as it is published, will not be regretted. In passing, the only criticism we might make is that each book should have a better and more lasting binding than paper.

Editorial.

The Uses and Limitations of Blood Vessel Surgery.

Success in maintaining the lumen of a blood vessel after suturing depends upon the amount of thrombus that is formed. This, in turn, is dependent upon the injury to the intima. In lower animals it seems that nature has provided more abundantly for their protection from hemorrhage by the ready occurrence of clotting than in man. Consequently, it is more difficult to obtain permanent success after suturing blood vessels in lower animals than in human beings.

The formation of some fibrin deposit is essential to close the almost microscopic lesions that are present from the puncture of a fine needle and the margin of approximation of the intima. If this fibrin formation is limited, it is a beneficent process. If however, the intima has been roughly handled or has been permitted to dry, or if infection occurs and extends the original injury, more of the elements for blood clotting are liberated, as pointed out above, clotting is more extensive, and the lumen of the vessel is closed. This, then, is the key-note of success in suturing blood vessels to have a minimum of foreign material and of injury to the intima.

It might be well for us to consider the present status of blood vessel surgery. Unfortunately, the spectacular character of this work has attracted the daily press. All sorts of fantastic notions are found not only in the public mind, but too often in the mind of the medical profession. We hear of the successful transplantation of the kidney in a human being, or the possibility of a cripple having a leg removed and another grafted on, or a thyroid gland being grafted successfully from one animal to another. No one has ever done these things successfully, and, so far as the present outlook is concerned, there is but little chance of permanent success along this line. To be sure, a kidney can be transplanted from one animal to another of the same species and may for several weeks or even several months secrete urine, but eventually it ceases to functionate. A leg can be transplanted from one animal to another and its nutrition preserved, at least temporarily, by suturing the blood vessels. The leg, however, never becomes

useful, the nerves do not regenerate, and it merely remains an inert mass.

Whether a kidney can be transplanted with permanent success from one portion of the body to the other remains to be seen. However, after dismissing these fantastic ideas there still remains a large field of usefulness for blood vessel surgery. Probably the most frequent use will be in transfusion of blood. Undoubtedly, in certain cases this procedure saves lives when no other measure can be employed. There comes a time, for instance, in acute anemia when nothing short of healthy living red blood cells will prolong life, and they can only be supplied by transfusion of blood. In injuries of a blood vessel, whether accidental or whether a portion of the vessel is removed in order to accomplish a radical cure for a malignant tumor, the ends can be sutured satisfactorily either directly or by the interposition of a segment of a vein which may be easily obtained from one of the superficial veins of the arm or leg. Arterial suturing to be successful must not only be done with a careful technic, which has been perfected by animal experimentation, but must be done on healthy blood vessels. This condition will make it improbable that an aneurism due to arteritis can be cut out and the vessel ends sutured together.

A surgeon who has this technic at his command can certainly give a patient a somewhat greater chance for recovery from operation when unforeseen complications arise than the surgeon who does not employ blood vessel suturing. It will be recalled that fifteen years ago many operators were not prepared to use intestinal suturing and resorted to the Murphy button or some similar appliance. Gradually it was found that the needle and thread was the most effective method in resection of the bowel. Probably if this knowledge had come earlier many lives would have been saved that have otherwise been lost because of ignorance of the technic of intestinal suturing. It seems that blood vessel surgery is undergoing a similar evolution, and those who do not equip themselves for this technic may find that they will soon be in the same position as would now be the case of the abdominal surgeon who cannot unite an intestine with a needle and thread.—J. S. H.

The Typhoid Situation in Virginia.

The July statistics of the State Board of

Health show that Virginia is beginning to reap the fruits of the seed sown in the popular education of the people and the general precautions of health authorities against typhoid fever. Whereas 1,593 cases were reported for July, 1911, only 343 were reported in July, 1912. Owing to the fact that the larger cities, in which the typhoid rate had been reduced to a very low figure, are not included in this calculation, and as there are many physicians who have failed to report each year, it is roughly estimated that there was only one-third as much typhoid fever in Virginia for July, 1912, as for the same month in last year.

This is a convincing illustration of what may be accomplished when the people and health authorities work in unison, and there is no doubt but that there will be a corresponding decrease in a number of other diseases when the State is able to cope with them.

The United States Public Health Service.

By an act of Congress approved August 14, 1912, the name of the Public Health and Marine Hospital Service was changed to Public Health Service. The public health functions and duties of the service were extended somewhat, and certain changes were made in the salaries of the officers, to be effective beginning October the first.

North Carolina Active Against Hookworm Disease.

Since the provisions made by the last North Carolina Legislature for the establishment of free hookworm dispensaries, forty-four counties in that State have taken advantage of the offer by bearing their portion of the expense connected with them, and it is estimated that over 50,000 persons have been treated.

The Shenandoah Valley (Va.), Medical Society,

At its last quarterly meeting in Harrisonburg, in August, elected Dr. William S. Love, of Winchester, president, and Dr. Walter Cox, of the same place, secretary. This society is one of the largest district societies in the State, and includes many representative doctors of that section among its members.

The Southside Virginia Medical Association

Will hold its next quarterly meeting in Emporia, September 10, 1912, Dr. J. E. Rawls, of

Suffolk, presiding. Dr. E. F. Reese, of Courtland, is secretary-treasurer. These meetings are always pleasant and interesting, and it is hoped that there will be a large attendance.

American Electro-Therapeutic Association.

The local committee appointed by the president of the Richmond Academy of Medicine and Surgery to prepare for the coming meeting of the above Association in Richmond, September 3, 4 and 5, are Drs. J. C. Walton, chairman, and Drs. C. M. Hazen, M. W. Peyser, R. W. Miller, J. A. Hodges, D. D. Talley, R. A. Nichols, and E. H. Terrell.

Dr. William F. Drewry,

Of Petersburg, Va., was recently elected a member of the National Committee of the International Congress of Medicine, which is to be held in London, England, August 6-12, 1913. This committee is composed of representative men in the various branches of medicine from different parts of the United States.

War on Pellagra.

A representative from Tennessee has, in the last few days, introduced a bill in Congress calling for the instruction of experts of the United States Public Health Service to investigate the causes and discover the cure for pellagra. If passed, this bill would carry an appropriation of \$50,000 for this purpose.

Dr. Fitch Receives Commission in the Army.

On July 30, President Taft, with the confirmation of the Senate, commissioned Dr. William Edward Fitch, Editor of *Pediatrics*, of New York City, to be a first lieutenant in the Medical Reserve Corps of the Army of the United States, dating from July 3, 1912.

Dr. Clifton M. Miller,

Of this city, has moved his offices to 3 West Grace street.

Analyses, Selections, Etc.

This Department of the *Semi-Monthly* has been omitted in the present issue, owing to the absence from the city of Dr. M. W. Peyser, the Editor in Charge.

Death from Plague in Manila.

The first death from plague in Manila for more than seven years was that of a Filipino in Tondo, in June, 1912. Although necropsy showed the typical lesions of bubonic plague and the diagnosis was confirmed clinically and bacteriologically, health authorities have been unable to ascertain the origin of the infection in this case. An interesting fact is that at the necropsy the tonsils were found to be in a sloughing condition.

Poliomyelitis in Los Angeles.

Los Angeles, California, has been in the grip of an epidemic of poliomyelitis. The State Board of Health reports that during June and July there had been 150 cases in that city.

Obituary Record.

Dr. Thomas B. McClintic,

Passed Assistant Surgeon in the Public Health Service, died in Washington, D. C., August 13, aged thirty-nine years, a victim of the Rocky Mountain "spotted fever," which he had been fighting in the Bitter Root Valley of Montana all summer. So effective had been his work, that his was the first case of the disease in that section this year. A native of Bath County, Virginia, he received his medical education at the University of Virginia, from which he graduated in 1896, and entered the Public Health and Marine Hospital Service in July, 1899. The interment was made at his former home, near Hot Springs, Va. He is survived by his widow, a bride of a few weeks.

Dr. John J. Taylor,

Of Philadelphia, died at South Ocean City, N. J., August 2, in the fifty-ninth year of his age. Though a native of Indiana, he came East to study medicine at the Medico-Chirurgical College of Philadelphia, and after graduating in 1887, located in that city. He was the editor and publisher of the *Medical Council* and also the author of several books bearing on the relationship between the physician and business matters. He is survived by his widow and two children.

THE Virginia Medical Semi-Monthly.

(FORMERLY VIRGINIA MEDICAL MONTHLY.)

Vol. 17, No. 11.
Whole No. 395

RICHMOND, VA., SEPTEMBER 13, 1912.

10 Cents a Copy
\$2.00 a Year

Original Communications.

THE GENERAL MANAGEMENT OF CASES OF PULMONARY TUBERCULOSIS.

By PAUL H. RINGER, A. B., M. D., Asheville, N. C.

But one postulate is asked as preface to this article, namely the establishment of a diagnosis of pulmonary tuberculosis. The writer wishes to deal briefly with the general management of cases of incipient and moderately advanced tuberculosis; those cases, generally speaking, that do not run a temperature of over 101 as a maximum, and whose general condition is at least fair. The far advanced and acute cases are hardly ever ambulant, and save for the fact of their being continually in bed, the management is approximately the same as that to be detailed hereafter.

First and foremost after the positive establishment of a diagnosis, comes the absolute necessity of informing the patient with perfect frankness as to the nature of his disease. No one can take the proper measures needful for the rational treatment of pulmonary tuberculosis unless he knows the why and wherefore of the details of the new regime. "Bronchial affection"—"weak lungs"—"tendency to tuberculosis"—these are expressions to be shunned, and the truth should be plainly laid before the patient. It comes inevitably as a great shock, but the individual lacking the courage to withstand the crushing news is also deficient in the patience and persistence necessary for the regaining of his health.

With the establishment of a diagnosis and the information of the patient as to his condition, comes the question; what is to be done? Here one invariably encounters the word "climax" with all its quasi-mysterious healing powers. As, a decade or two ago, no case of tuberculosis was thought to become ameliorated without climatic aid, so to-day, following the excellent results obtained with the so-called "home treat-

ment" of the disease, the pendulum has swung to the other extreme, and many authorities decry climate and ridicule the health resort. Neither position is wholly right or wholly wrong. Climate alone will do far less toward the regaining of health than will a strict hygienic regime alone—but the combination of the two is unquestionably better than either by itself. Climate is by no means the first requisite for the tuberculous; but it is an aid which, whenever available to a patient, should never be omitted. Now what is meant by a patient capable of availing himself of climatic advantages? It is a melancholy fact that even matters of life and death have to be placed upon a monetary basis—and yet in the present state of human society it must be so. To be brief, *in order to reap benefits from climate*, (unless able to enter a charitable institution), *a patient must have at his disposal from \$75 to \$100 per month for a period of at least 6 months*. In the majority of health resorts he can, for this amount, obtain creature comforts equal to or greater than those in his own home—can carry out his physician's instructions, and can secure benefit from the change. The patient with \$50 or \$60 a month at his disposal is generally better off at home where arrangements can usually be made for the carrying out of the regime to be detailed later.

If climate be decided upon, its particular selection comes to the front. Let it be understood that there is NO SPECIFIC CLIMATE for tuberculosis, as evidenced by the fact that cases are recovering from Maine to California, and from North Dakota to Louisiana, while our well-known health resorts for this disease embrace all climates from the rigor of Saranac to the mildness of southern California. The patient should be sent to that health resort in which his home physician knows that he will be under competent medical supervision. Frequently the choice of the physician in the health resort is of more importance than the health resort itself. Nothing is more pernicious to the patient, and few things

are sadder than the results obtained from the advice: "Go to such and such a place, stay out in the open air, take care of yourself, and keep away from doctors."

If a particular health resort be selected and the patient be referred to a competent physician there, the home physician's responsibility is at an end. But if it be decided to pursue the needful course of treatment at home, the local physician is at once face to face with a multiplicity of details to be met.

One is almost ashamed at this day to write that the treatment of pulmonary tuberculosis depends upon rest, fresh air, good food. The statement is too prosaic. Of its truth however, there can be no doubt. The very vagueness and inclusiveness of this statement renders it a possible pit-fall for those not devoting much of their time to the treatment of the disease under consideration. If it be true that genius is "the capacity for taking pains," then many men treating tuberculosis successfully deserve that appellation, for surely in no condition is attention to details more necessary and is the taking of pains more essential, and also in no disease is the line more finely drawn between success and failure.

First in importance for the carrying out of the open-air regime is a satisfactory porch. This can be situated upon the ground-floor of the house, or can be built upon the second floor. A very satisfactory second story porch can be constructed for from \$35 to \$50, though of course more can be spent if desired. The porch should be large enough to easily accommodate a single iron bedstead, a large reclining chair, a table at least 2 feet, 6 inches square, and one other chair. It is best for the porch to face south or southwest, though this rule may be varied depending upon its practicability in any particular case, and also upon the direction of prevailing winds, from which the porch should be protected. One end of the porch (that on the "windward" side), should be enclosed preferably by glass sliding in grooves, so that they can be opened or closed at will. If this be beyond the patient's means, a piece of heavy sail-maker's canvas with a two-inch iron pipe along the bottom to prevent flapping affords excellent protection. There should be awnings in the summer to keep off the heat of the sun as well as its glare, both of which are frequently annoying. If practicable, an electric light upon an adjustable bracket adds much to the patient's comfort.

The porch should be deep enough to be protected from any but the most driving rains, and should have well overhanging eaves. The porch rail should be solid to a height of at least 3 feet, and during the hot months the porch should be completely enclosed in mosquito netting.

The patient should have a large comfortable reclining chair, preferably one in which any position from the upright to the supine can be assumed without having to rise to make adjustments. There are several such chairs on the market, their price not exceeding \$15. The writer would in passing register a protest against two forms of chairs that are often suggested: steamer chairs, and canvas reclining chairs. The former are too short and too narrow—force the maintenance of one position, and are not roomy enough to permit of the use of a heavy blanket or comforter without seriously incommoding the patient. The latter have the disadvantage that owing to the pliability of the canvas the shoulders are drawn together anteriorly, and the chest correspondingly compressed, resulting in restricted breathing. The best chair is one with a firm wicker back and seat, and of sufficient width to permit the use of wraps without cramping the occupant.

The question of clothing and wraps is an all-important one. In mild climates or in summer, these necessitate but little attention, though women are at all times too prone to wear thin, filmy, open-work waists and stockings of insufficient thickness. In winter, clothes and wraps are of the greatest importance. Patients vary greatly in their needs and in their ability to withstand cold. Some thrive on zero weather, others are chilled from morn 'till night and have to seek less frigid conditions. A warm suit of underwear, all wool, or cotton and wool mixed, is the best. Over this go the regular winter clothes, reinforced occasionally with a "sweater," and on top of this a moderately heavy overcoat. For outside wraps, probably nothing equals the Klondike bag; a wadded sack with a long back which extends over the head of the chair. The "bag" portion of the Klondike reaches as far as the patient's waist. The bag is closed on one side and open half way down the other, the open side having sets of tape which, when tied, close it. Into this bag the patient inserts his feet, (a hot water bottle can be placed at the bottom if necessary), draws the bag up to his waist, ties the tapes along the

open side, and reclines against the long extended back. If a heavy comforter, a horse blanket, a down quilt or some similar warm covering be placed over the patient and well tucked in, if the patient be provided with a cap with ear "tabs" and a pair of warm gloves, he is now ready to withstand temperature of zero and under.

The patient must possess a sputum-box, the best type when at rest consisting of a tin holder within which is placed a water-proof paper filler which can be taken out and burned. When walking about one of the many varieties of pocket cuspidors should be used. Under no circumstances should the patient ever be allowed to expectorate on the floor, in the fire or in the street. Small squares of cheese-cloth should be provided to be held over the mouth while coughing, and should subsequently be placed in a paper bag (obtainable at any grocery store), the bag and its contents to be burned daily. The tuberculous individual that is careful as to the disposal of his sputum is a menace to no one—the careless consumptive is a very dangerous person. It is well when the patient is living at home with many well people to furnish him with separate dishes, knives, forks, etc., and to boil these after every meal. If such precautions be taken, together with the burning of all sputum every 24 hours, and the soaking of all handkerchiefs in 5 per cent. phenol for 2 hours before washing, no fear need be entertained as to the spread of infection.

Latterly sleeping out has commanded much attention. Valuable it certainly is, but, in the writer's opinion, only under favorable conditions. In other words, *the patient must not be forced to "rough it" in order to be able to sleep out*. He must have all modern conveniences, which are few and inexpensive, but most essential. He must be protected from a driving wind and from rain—(much more important is this than during the day when position can be changed with comparative ease); he must have an awning which he can operate from his bed in case the wind shifts or the rain comes during the night—he must have a bed urinal so that the necessity for evacuating the bladder will not force him to rise—he should, if possible, have a call-bell, so that assistance may be rendered in the event of any emergency. By attention to these few details the safety and comfort of the patient are assured. Sleeping out can be safely

and comfortably carried out on a porch such as has been described, and the additional time thus spent in the open is of unquestionable advantage.

The patient should spend ALL his time out of doors, REGARDLESS OF WEATHER CONDITIONS. If he be so fortunate as to have suitable accommodations for sleeping out, he should be in the open fully 22 hours daily, entering the house only for the morning toilet and for meals, and, in warm weather it is well to serve the latter on the porch. If the patient sleeps indoors, twelve hours a day will be about the maximum time that he can spend on his porch—*e. g.*, 8.30 to 1.30, 2 to 7, 7.30 to 9.30. If the patient begins his out-of-door life in cold weather, he should be told that no hardships or suffering are desired. Sitting out does him good only as long as he is perfectly comfortable in so doing. At the first sensation of chilliness he is to go indoors—get warm—and then at once return to the open. It must, however, be impressed upon the patient that if it takes 15 minutes to get warm, it is quite needless to spend an hour indoors.

Volumes have been written about the DIET in tuberculosis—elaborate diet lists with their caloric values have been devised, and yet the sum and substance of it all lies in the fact that *the tuberculous patient requires three square meals a day and a little more*. A few years ago forced feeding was greatly in vogue. Twelve eggs and 8 to 10 glasses of milk were the daily quota in addition to the regular meals, and effort was made to induce the patient to take every mouthful of food possible. As a result much weight was gained, but many digestions were ruined, and thus the tuberculous patient was deprived of one of his most valuable assets—the power to digest and absorb. At present the consensus of opinion is in favor of moderate feeding and of carefully avoiding intestinal overcrowding.

Meat should be eaten once a day, sometimes twice, never thrice. Steak, roast beef, chops, chicken and lamb are superior to veal and pork. Vegetables in variety—there is no need to simply enumerate them. A generous mixed dietary will suffice. Two things are very important—the cooking and the serving of food. Often the patient has but little desire to eat and his appetite must be tempted. Food must be well cooked, served hot, and made attractive on the plate with a bit of green or a flower or two. It is well

to bring the patient but one or two things at a time—to serve the meal as it were in “courses.” Many patients will eat a meal with a relish if served serially, while the sight of a large tray containing six or eight “bird’s bath-tubs” disgusts them at once. Sweets, save in the form of small portions of dessert, are to be avoided, as are fried foods and those cooked with much grease. No faith is to be placed in the “nourishing and strengthening” value of broths—they may sharpen the appetite, but as their main constituents are extractives from the meat they cannot be relied upon as tissue builders.

“Milk and eggs” was once the grand slogan in the diet of the tuberculous. True it is, that to-day we could not dispense with these invaluable adjuncts to the patient’s dietary—but a change in quantity has come about. It is hardly ever necessary or even desirable to give more than 6 glasses of milk and 6 eggs daily in addition to the patient’s three regular meals, and even this amount is to be prescribed only if borne by the patient without any discomfort. If 6 eggs and 6 glasses of milk be taken, they are best given one of each at meals, and one of each at 11 A. M., 4 P. M., and 9 P. M. The tuberculous patient’s processes of oxidation proceed more rapidly than do those of his normal brother, and, consequently, he requires more food and food at more frequent intervals. The patient’s “Doctor, I can’t take milk and eggs” usually means: “Doctor, I don’t want to take milk and eggs.” There are unquestionably some individuals that cannot take milk and eggs; but, fortunately, their number is small, and they are working under a very great handicap. Sweet milk, if objected to, can be diluted with lime water, flavored very slightly with tea or coffee, or else the patient can begin with amounts as small as a tablespoonful and gradually increase. In more obstinate cases buttermilk, whey, koumyss, can be substituted for sweet milk. There are but few that, when really and earnestly trying to take milk, cannot do so.

Many more have great difficulty with the taking of eggs. The raw egg that slides down so easily, very often comes up far more so. The yolk of the egg is the portion that usually causes the trouble. Most patients can take the white of egg which is valuable, being pure proteid. The yolk, however, contains a large percentage of fat, which is of great benefit. Frequently patients that cannot take whole eggs undis-

guised, can take them if beaten up in milk and flavored with sugar and a few drops of vanilla. The whites can almost always be taken if beaten up with cracked ice to which lemon or orange juice may be added. It is not wise to try to force the patient to take the yolks if after an earnest trial they continue to disgust. Pains and ingenuity are needful in the administration of both milk and eggs, but the results to be attained are well worth the study and attention necessary.

The patient should be taught the use of the clinical thermometer and also how to count his own pulse. He should have a book wherein he can make a note of the way these run, of the amount he eats, and of any particular occurrences, whether physical or mental, that serve to mark the day. The temperature should at first be recorded every two hours, for transient rises are otherwise apt to be overlooked. After a while (two or three weeks), when the course of the patient’s temperature is well known, a four hourly record is sufficient. The thermometer should in every instance be left in the mouth 5 minutes, and in cold weather 10 minutes. As long as the patient runs a maximum temperature of 100 or more, or a pulse of over 100 while at rest, he should be kept absolutely quiet on the porch. THIS RULE HAS NO EXCEPTIONS. When the pulse has dropped to a maximum of 85 to 90, and the temperature does not rise over 99.2 or 99.4, the question of exercise presents itself.

We all remember the days when the patient with tuberculosis was told to stay in the open and rough it—and we all remember the rapid breathing, the hectic flush, the tremulous hands and lips that denoted exhaustion as a result of forced and unnatural exercise—all presaging an early and fatal termination of the disease. On the other hand, we have very recently seen an excellent paper by Lawrason Brown, of Saranac Lake, which he concludes by saying that so impressed has he been by the necessity for rest, *rest*, and absolute REST in the treatment of tuberculosis, that were he starting now to treat himself for this disease he would go to bed for two months regardless of whether or not he presented any symptoms that ordinarily would warrant such radical measures,—i. e., temperature, fast pulse, hemorrhage, etc. There is no doubt that rest has been overdone in certain cases of tuberculosis, but there is also no doubt that this

excess of rest did no harm—it simply lost time—while indiscriminate and uncontrolled exercise practically kills the patient. After the temperature and pulse have been within the limits indicated for at least a week, the patient may be allowed 5 minutes slow walking—indeed, if the period of temperature or fast pulse has been protracted (over a month or 6 weeks), it is best to begin with 2 or 3 minutes. Many will look upon this as a joke, but they must be impressed with the fact that when 5 minutes are allowed, 5 minutes AND NO MORE are meant. If this be borne without fatigue or undue rise in pulse or temperature, the time of exercise may gradually be increased. Up to 15 minutes, it is well to add 2 minutes daily. After 15 minutes have been reached, increase may be made in blocks of 5 minutes each up to half an hour, when additions of 10 minutes can be allowed. All increase in the time of walking must be made most carefully and with great attention to pulse, temperature and general endurance. After 20 minutes have been attained, it is well to divide the exercise period into two—two-thirds being taken during the morning hours, and one-third during the afternoon hours. In the event of any rise in temperature or in pulse-rate, exercise should be suspended at once, and in women it is best to omit it during the menstrual period. Exercise carefully prescribed and rationally taken can prove to be of the greatest benefit in tuberculosis. Carelessly allowed and taken without scrupulous regard to time and distance, it is capable of irreparable harm.

So many symptoms and complications demanding attention and relief may appear in the course of pulmonary tuberculosis that any complete enumeration of them would be out of the question in an article of this length. However, a few of the more common symptoms can be mentioned, together with suggestions as to how they should be dealt with. The various methods of treatment will not be gone into, one or two efficient measures being given.

Hemorrhage; always extremely alarming to the patient and to those about him. In no emergency does the physician need more that quality so well described by Osler in his essay on "Aequanimitas." For a hemorrhage of an ounce or less, no particular treatment is required save to keep the patient in bed for two or three days. In the event of free bleeding the following is a good routine: Place the patient on his

back, one pillow under the head. Small amounts of cracked ice and a few pinches of salt by mouth. An ice-bag over the heart. If the patient be bleeding freely upon the arrival of the physician, or if a trained nurse be available, a hypodermic injection of atropine, gr. 1-33 to 1-25, will give the promptest results. (An amyl nitrite pearl may be administered while the hypodermic is being prepared). No fear need be had because of the size of the dose of atropine. Full physiological effect is required. The cutaneous vessels must become engorged and the deeper ones depleted in order to markedly lower deep blood-pressure and thus favor the formation of a clot. The writer has frequently given grain 1-33 of atropine and has sometimes repeated it within 6 hours. He has never seen any untoward effects other than excessive dryness of mouth and throat and dilatation of the pupil, coupled occasionally with vesical paresis necessitating the use of the catheter for 24 or 36 hours.

Morphine should be given in hemorrhage cases for two purposes only; to allay excessive cough and to quiet the patient if he be extremely nervous. Obviously it will have to be given in a large percentage of cases with any free bleeding. After active bleeding has ceased, the patient must be kept absolutely flat on his back, the use of the bed-pan insisted upon, and within a few hours a calomel purge followed by Epsom salts, (or else the salts without the calomel), is an excellent procedure, tending to lower blood-pressure by depleting the body of fluids. The patient is to be kept on his back until the post-hemorrhagic clots have all been expelled, and must then remain quiet on his porch for at least a week. Of course, should temperature supervene after the hemorrhage, rest must be instituted until its subsidence.

Night sweats; save in the most advanced cases these can frequently be prevented and almost always lessened by the out-of-door regime alone. As valuable adjuvants should be mentioned atropine in doses of grain 1-100 taken before retiring, or else the combination of this drug with camphoric acid, grains 10, and agaricin, grain 1-8, in capsule form, one to be taken at night.

Cough; this is the symptom that patients complain of and seek relief from more than any other. There are two kinds of cough—the deep productive cough that brings up sputum, and

the hard, harsh, hacking cough that does no good and merely exhausts the patient. The cough that brings up sputum is not to be interfered with, for it is a potent factor in nature's method of draining. The hacking irritable and irritating cough can, in a large measure, be controlled by the will. This should be explained to the patient in order to ensure his co-operation. For the dry cough that cannot be controlled, codeine in 1-8 or 1-4 grain doses not oftener than three or four times daily will usually suffice. Heroin may also be used, or one of the many cough mixtures, though, as a general rule, the single drug tablets are preferable. Stated broadly, cough that does not keep the patient awake at night needs no interference on the part of the doctor; cough that spoils the patient's rest demands attention.

Few patients are so fortunate as to go through pulmonary tuberculosis without one or more attacks of dry pleurisy. When this occurs, the patient should be put to bed and have the bowels well opened, with diet restricted to liquids and semi-solids. Locally much can be done in the way of immobilization and counter-irritation. For the former strapping the chest with adhesive plaster is the best. When doing this it must be borne in mind that in order to obtain the greatest possible fixation, the ends of the adhesive strips must rest on the relatively fixed points of the thoracic basket—the sternum and the vertebral column.

For counter-irritation, the three best things to use are mustard, iodine, and a cantharides blister. To these may be added the actual cautery which is most efficient in some cases. Mustard has the objection that the redness it produces is lasting, and usually prohibits any further measures for several days. The cantharides blister is even more drastic, and, moreover, takes from 12 to 15 hours to get in its work. Furthermore, if the area of pleuritic involvement be great, a blister is manifestly insufficient. Iodine on the whole seems best, though on a few individuals it produces such intolerable itching that its use must be abandoned. If the pain be very intense, codeine by mouth or hypodermically may be resorted to, and in extreme cases recourse must be had to morphine.

Fortunate indeed is the patient whose alimentary canal at no time rebels. Constipation is usually complained of, and generally increases in intensity because of relative stuffing and very

little exercise. It is sometimes astonishing to see how the bowels will adjust themselves when a patient that has been limited for some time to 10 or 20 minutes exercise gets up to an hour a day. The bowels **MUST BE KEPT OPEN**—as mentioned above; with increasing exercise they tend to better themselves, but during the period of absolute rest recourse must be had to many of the milder laxatives, such as sodium phosphate, cascara, etc. Many patients do better with the assistance of a brisk calomel purge every four or five weeks. The formation of gas in the intestines is one of the most distressing and frequent symptoms that the patient complains of. If the gas be mainly in the lower bowel, an enema of a saturated solution of magnesium sulphate and glycerine—two and a half ounces of each, will give relief. When the gas is in the upper intestine it is best to stop milk and eggs and to reduce the quantity of food markedly for a couple of days. Among the many drugs used for the relief of this condition resorcin has given the writer the best results. It is given in capsule in 4 grain doses every 4 hours, combined with an equal amount of sugar of milk to prevent the deliquescence of the resorcin which otherwise takes place. Many patients also suffer from attacks of diarrhœa as a result of over-feeding and under exercising. These attacks of diarrhœa are in no sense related to the tuberculous process, and fortunately have none of the doleful earmarks of tuberculous enteritis. They should be treated as should all such bowel disturbances, by an initial purge, starvation, and subsequent medication to check the bowel movements, coupled with cautious return to full diet.

It frequently happens that a patient that has been running a normal temperature suddenly has an upshoot with either decided increase or decrease in cough and expectoration, and with or without pain or a sense of tightness over some area of the chest. Upon examination a change in the breathing may be noticed, or else a change in the quantity or quality of adventitious sounds. The picture is one of a local flare-up in the tuberculous process from causes sometimes easily assignable, at other times quite beyond our ken. These attacks are, for want of a better term, called "congestions." The patient should at once be put to bed, the bowels freely opened, and given liquid diet together with counter-irritation with mustard or iodine over the affected area. Wrapping the chest in anti-

phlogistine is also a good measure. If this be resorted to, it is best to keep the application on uninterruptedly for from 36 to 72 hours, changing it when it has gotten dry. Internally, tincture of aconite and tincture of belladonna can be given until full physiological action on the pulse is obtained as evidenced by its softness and compressibility, or else veratrum viride may be resorted to, also being given in full dosage. If given early and freely these drugs will often abort a flare-up, and almost always shorten it. If given in small doses they are worth nothing. The patient must of course remain in bed until the temperature has returned to normal, and, if on exercise, must resume it with caution.

How long a time is required for the arrest of a case of pulmonary tuberculosis? No question is more frequently asked, and no question is more difficult to answer. We simply do not know, as is evidenced by the statement made by the best authorities that it takes from six months to three years or more. In the most favorable cases however, the patient must be told that at least six months must be given up *entirely* to the business of getting well, the patient having no other thought and no other distracting element in his life. At the end of 6 months, with subsidence of all symptoms indicating activity, temperature, fast pulse, loss of weight, etc., with disappearance of or great reduction in cough and expectoration, and with the maintainance of this stationary condition for at least two months, the patient may be allowed to attempt work. In any event the patient should be put to work under the supervision of his physician before being discharged as an arrested case and sent into the arena of life again. *A work cure should succeed a rest cure.* The very nature of the rest cure is such as to make a patient introspective, analytical, hyper-observant, and finally morbid. Thus it is frequently seen that a patient having completed a rest cure for pulmonary tuberculosis and having had the good fortune to have his disease arrested is cast upon the world a neurotic. Generally speaking it is best for the patient to return to that work which he was doing before being taken ill (save in those cases where such work involved heavy physical effort), because he can do it with less expenditure of energy than is necessary for a "new job." At first he should resume work for but half a day, gradually increasing to a full day's work, adhering strictly to his hygienic

regime outside of working hours, and remembering that there are from 14 to 16 hours out of the 24 that are his to spend as he wishes and that it is upon the proper disposal of these hours that depends his salvation.

No element in the management of a case of pulmonary tuberculosis is of greater importance than the general morale of the patient, his attitude toward his disease, and his relation to his physician. One need not be pessimistic when telling the patient the nature of his affection, but one must be certain to duly impress him with a sense of its gravity—for no case of tuberculosis, however slight, can be looked upon as other than a very serious disease. The patient must realize the necessity for implicit obedience to his physician's orders; he must feel that their work is wholly co-operative, and that no instruction, however trivial, can be slighted. The patient that is to recover needs much sound philosophy, much faith, much perseverance, and a large amount of that fighting spirit so well characterized by Kipling when he says:

"If you can force your heart and nerve and sinew
To serve your turn long after they are gone,
And so hold on when there is nothing in you
Except the Will which says to them: 'Hold on.'"

For, in truth, recovery from tuberculosis is a fight, and as a fight it must be considered. It is, moreover, a length fight—one interspersed with progress and repulses. Practically every case has, at some time or other, set-backs of a more or less serious nature, but these must be expected and met in an unflinching spirit.

The inculcation of cheerfulness is one of the greatest aids. The dwelling on self—the morbid—symptom-talking, the wave of discouragement when the temperature is found to be half a degree up—all these are to be shunned. The patient should understand the general principles of his disease, but nothing is worse than to allow an individual with tuberculosis to get a book on the subject and "read up." No man can look upon his own case philosophically and dispassionately, and any knowledge that he is to gain thereon should come directly from his medical adviser. The fight for health is a three-fold one—physical, mental, and moral. To the victor belongs the spoil, and the man that wages a successful conflict comes forth therefrom a better individual in all ways than he was at the start; strengthened physically, upbuilt mentally, trained and stimulated morally. His

months of waiting, of sacrifice and self-denial, his determination to get well, his extra efforts in dark hours, his smile ever turned outward and gradually turning inward in the face of vicissitudes; all these produce a larger, stronger, nobler individual than would have obtained had not misfortune fallen across his path and given him a great opportunity to prove to himself and to his fellows the potential might that is and ever will be the bulwark of him that fights a good fight.

8-10 *Government Street.*

THE PRACTICAL USE OF IODINE FOR THE PREPARATION OF THE SKIN IN OPERATIVE CASES.*

By DRS. D. W. and ERNEST S. BULLOCK, Wilmington, N. C.

Throughout the daily work of the surgeon the most continual source of apprehension is the preparation of the area about the site of the operation. This important task is generally allotted to assistants, in many cases nurses, and is often out of the supervision of the operator.

Fear of injuring the skin and preventing primary union makes us avoid the use of powerful germicides, yet the disinfectants that are without danger are generally without value.

In our country biniodide of mercury, preceded by soap, water, alcohol and ether, is without doubt the most popular method of preparation. That it should have enjoyed its past reputation and given the moderately good results that have followed its use is more than probably due to the mechanical cleansing and the use of alcohol somewhere in the process.

That biniodide of mercury is not to be credited is forcibly shown by the work of Post and Nicoll,¹ who inoculated tubes of the biniodide of mercury and, making cultures at one, ten and thirty minutes, found that streptococci, pneumococci and gonococci were alive after a half hour's immersion in a one to two thousand solution. These workers were rather surprised to find that when reduced to one-fifth this strength the solution was equally germicidal in its action. With these facts before us, we could hope to gain very little by pouring such solutions over the skin.

Since Grossich² showed the use of iodine to give better results than soap, water and mercur-

rial antiseptics, much attention has been given to this subject. However, the use of iodine is not as general as the value of the agent would warrant. Since his initial report, Grossich has collected two thousand, two hundred and eighty-four operations showing excellent results from iodine disinfection. He simply paints the skin with ten per cent. solution (official Italian tincture) a few hours before operation. A sterile dressing is applied and after the patient reaches the table the coating of iodine is repeated. The hair is not removed and no soap or water is used. The process is simplicity itself and its originator contends that any variation is without advantage and merely complicates the technique.

When iodine is applied to the skin, Laiaco³ has shown that it rapidly permeates its layers and diffuses through the subcutaneous tissue. This affords opportunity for contact with the organisms dwelling in the lower strata of the skin. Mercury is deprived of this action for when in contact with the skin a coagulum is formed, and this, with the swelling of the cells in the presence of water, effectually prevents the permeation of the mercury into the lower layers of the skin.

Having attained the organism, Post and Nicoll¹ find that dilutions of iodine, one to four hundred, kill virulent streptococci in less than one minute.

In using the agent each operator seems to be a rule unto himself. Jewett⁴ washes, shaves, dries, then paints the skin with a seven per cent. tincture, and reports that he "has not had a single wound break down."

Having seen a single application of iodine cause a severe dermatitis, Stretton⁵ reduced the strength to two per cent., and closely followed its use in fifty-one of his clean cases. These patients ranged in age from two to eighty-four years. In all there was a total absence of inflammation, suppuration, stitch abscess or discomfort on the part of the patient. His technique was as follows: A few hours before the operation, without any previous preparation, the skin is painted, allowed to dry, then covered. This is repeated after reaching the table and again when the skin sutures are introduced so that these punctures may bring no infection to the surface. On the eighth day these sutures are removed and the remaining perforations are painted again.

*Read before the North Carolina State Medical Society, at Hendersonville, N. C., June, 1912.

Iodine disinfection was probably first used in this country by Cannaday⁶ in 1905. Beginning with a very complicated technique in which iodine did not play a prominent part, he, from year to year, eliminated the unnecessary details until at present three coatings of a ten per cent. iodine are applied. The first on the preceding day, after a soap and water washing, the second early the morning of the operation, the third after the patient reaches the table. "Infrequently" this operator has "seen a fine vesicular eruption follow the use of iodine on the skin." The lesions were never severe and promptly disappeared.

Going back to the more simple method of Grossich, Gibson⁷ applied one coating of a seven per cent. tincture after the patient reached the table, no previous preparation having been made. After more than a thousand cases, he concludes that the results have been "uniformly good." The only infections that occurred were in "some salpingitis cases with large abscesses," these cases having always given him some "trouble with wound healing." This writer refers to a surgeon who stopped the use of iodine because it "prevented judging the tension produced by tying the skin sutures." The use of the agent in a few cases would suffice, we believe, to show that there is no practical ground for this objection.

Further objection is suggested by the possibility that the iodine might be carried from the skin into the wound and peritoneal cavity where it might prevent primary union and cause plastic adhesions. While this conclusion is plausible, in actual use this does not occur.

In instances where the peritoneum contains pus, Dannreuther⁸ uses sponges wrung from a one to two hundred and fifty-six solution of iodine, and irrigates the cavity with this solution; after closing the peritoneum, the wound is flooded with this mixture. Drastic as this procedure may appear, after being used "in a large number of cases extending over three years," its use attests that he has not had a stitch abscess or other trouble at the site of the wound. The small amount of iodine that might pass into the wound would be slightly disinfectant and, in the above instances, where the wounds were filled with iodine of a strength double that necessary to kill organisms in less than one minute, the edges healed promptly.

In accident wounds iodine stands out in bold

relief. Maj. Woodbury⁹ uses an irrigation containing one teaspoonful tincture of iodine (U. S. P.) to a pint of water and, among other brilliant results, demonstrates the germicidal power of the solution by cases of extreme necrosis showing no suppuration when this solution was used.

The actual germicidal power of the agent is perhaps best shown by the work of Turner and Catto¹⁰ who, after the incision of the skin, removed a thin strip extending through its entire thickness. These were transferred to tubes and cultured for organisms. This was repeated in thirty-two operations covering the more common surgical affections. Six of the cultures revealed that the staphylococcus albus was present in each instance; three of the sections were from the groin. Despite the presence of the organisms, the wounds all healed by first intention, attesting to the lowered virulence of the unskilled bacteria. After reviewing their work, these observers advise that the surface be washed and the hair removed before the application of the iodine.

A method combining many advantages is that of McDonald,¹¹ whose technique is as follows: The night previous to the operation the surface is washed, shaved, rinsed in alcohol, followed by bichloride of mercury, dried and covered with a sterile cloth. On the following day, after the patient has reached the table, the abdomen is painted for about one-half a minute with a solution of iodine that is original with this operator. The iodine combination is based upon the work of Laiacono,³ which showed that iodine penetrated the epidermis more slowly in an alcoholic solution than was the case with some more active fat-solving agent. After a series of experiments, this observer concludes that carbon tetra-chloride (CCl_4) penetrates the skin most rapidly; moreover, it is non-irritating and slightly antiseptic. The McDonald solution consists of carbon tetra-chloride, 98 parts, and tincture of iodine, two parts, and after testing it for three years he has had no suppuration of the skin.

While working (Ernest S. Bulluck) in the clinic of Prof. Randolph Winstow, the iodine technique was installed and its superiority soon became proverbial among those associated in the work.

The solution that has found most favor at our hands is of three and one-half per cent. We

have, however, used sixteen per cent. iodine without harmful effects. In all particulars we have found it vastly superior to the older methods of preparation.

In conclusion, we believe that the iodine technique is the best in use to-day. It is most certain and convenient to the operator, and least offensive to the patient. Solutions of ten per cent. and higher may be used without harmful effects, but the solution is equally effective when weakened to two per cent. In instances followed by dermatitis, recovery is prompt without treatment. The simplicity of the procedure arouses doubt, but its use will inspire your confidence.

REFERENCES.

1. Post and Nicoll, *Jour. Amer. Med. Assn.*, 1909, Nov. 5.
2. Grossich, *Zentralblatt fur Chirurgie*, 1908, xxxv, 44.
3. Laiacomo, *La Ginecologia Moderna*, 1909, Aug. 14.
4. Jewett, *Med. Record*, 1909, Aug. 14.
5. Stretton, *British Med. Jour.*, 1909, Aug. 14.
6. Cannaday, *Amer. Jour. Obstet.*, 1912, Jan.
7. Gibson, *Annals of Surgery*, 1911, Jan.
8. Dannreuther, *Med. Record*, 1909, Jan. 16.
9. Woodbury, *N. Y. Med. Jour.*, 1910, Dec. 3.
10. Turner and Catto, *The Lancet*, 1911, Mar. 18.
11. McDonald, *Med. Record*, April 15, 1911.

Southern Building.

DIETETIC THERAPY.

By WILLIAM J. MALLORY, M. D., Washington, D. C.
Instructor in Medicine in the George Washington University and Attending Physician to the Out-Patient Department of the University Hospital.

The great English physician Graves once said that he wished for no other epitaph than this: "He first fed fevers."

This indeed represented a long step forward, but fortunately not the last, and it is to some of the more recent, if less striking, advances that the present paper is intended to call attention.

Dietetics in its broader sense is a branch of hygiene, and treats of the selection, preparation, and administration of suitable food and drink during health or disease. With our increased knowledge of the properties of food stuffs, and their relation to human physiology, dietetic treatment has assumed greater importance than ever before, and now forms an essential part of the management of almost every disease.

This treatment may be applied in a general

way as it is, for example, when an ample quantity of easily digested nutritious food is given to a patient who is suffering from some wasting disease, or is convalescing from an exhausting illness. In both instances, the purpose is to improve the nutrition of the patient, and increase the resistance to disease. It may also be applied in a more specific manner for the purpose of correcting a definite error of digestion, or in order to compensate for some deficiency in the general metabolism.

It is in the more definite and specific application of diet to the treatment of disease that progress has been more marked, and results correspondingly satisfactory.

However, before this or any other treatment can be intelligently applied, diagnosis is first necessary and not only anatomic diagnosis but physiologic diagnosis also; that is, we should, whenever possible, recognize not only the change in structure of organs but the alteration in their function also.

Thanks to more improved methods of examination, this is now possible in an increasing number of cases, and it is therefore often possible to compensate for a fault which cannot be removed, to relieve even if it is not possible to cure.

For example, it is not sufficient to make a diagnosis of gastritis, even though this be correct, for if effective therapy is to be applied, it must also be determined whether this is accompanied by excessive or deficient hydrochloric acid excretion, and the treatment modified accordingly.

Or, again, in diabetes, it is not enough to recognize this disease, find the patient's tolerance for carbohydrates and order a diet meeting this indication, but obesity, constipation, nephritis, and carditis must be considered, and the diet modified to meet whichever condition may be present.

Naturally diseases of the gastro-intestinal tract offer the field most suitable for the application of these principles, and it is in their treatment that one may notice an increasing tendency toward precision in the selection of food as well as in its preparation and administration.

Bickle,¹ after studying the effect of various foods on gastric secretion, has divided them into weak and strong stimulants of secretion, as follows:

WEAK STIMULANTS OF SECRETION.

Drinks.—Water, alkaline water, tea, cocoa rich in fats, rich milk, cream, clear albumin, gliadine, and pure native albuminous bodies in watery solution.

Condiments.—Weak solution of sodium chloride, 0.9 per cent.

Solid Foods.—Boiled meats, fats, parboiled vegetables, such as potatoes, cabbage, asparagus, red cabbage, cauliflower, spinach, turnips, starch, and sugar. Potatoes are always to be given in a puree form. White fish, fat fish, all in a finely divided form.

From the above list it will be seen that it is very poor practice to forbid meats or vegetables in a given case without specifying which are forbidden, which are allowed and in what form they are to be given.

This has a definite bearing on the mooted question whether a diet rich in starches or proteins shall be given when it is desired to reduce the gastric secretions. Some will doubtless be surprised to find starches, sugars, and fats mentioned as weak stimulants to gastric secretion. A non-stimulating diet might include boiled meats, neutral albumins, cream, puree of well-boiled vegetables, and would exclude raw or rare meats, broths and meat extracts.

A careful consideration of the physical and chemical properties of the various articles of diet will often enable one to allow a much more liberal diet than would otherwise be possible.

Since Garrod in 1848 demonstrated uric acid in the blood of gouty patients, uric acid has been a word to conjure with, and the influence of diet on gout and the uric acid diathesis has received a great deal of attention. Many textbooks until quite recently gave the most vague and conflicting advice on this subject. One

STRONG STIMULANTS OF SECRETION.

Drinks.—Alcoholics and carbonated drinks, coffee (including the so-called caffeine-free coffee, and all the substitutes for coffee); fat-poor cocoa, skimmed milk, meat broths, meat extracts, condiments, yolk of eggs, certain albumin, and peptone preparations.

Condiments.—Mustard, cinnamon, nutmeg, pepper, paprika and salt, except the physiological salt solution, i. e., 0.9 per cent.

Solid Foods.—Raw, rare, or slightly cooked meats, especially the dark meats which have a greater amount of extractives; hard boiled eggs; all salted, smoked or pickled meat or fish, and all dark breads.

authority forbids fats, another recommends a reduction of carbohydrates, and a third warns against meats, more especially against red meats. What is the explanation of this confusion and apparent contradiction?

It is this: Gout is very frequently accompanied by gastro-intestinal disturbances, but the nature of this disturbance is quite different in the various cases, and, therefore, the diet which has been found suitable in one case is often not tolerated in another.

It is only through a clear understanding of the nature of this disease and a better knowledge of the chemical and physiological properties of food that this subject has been removed from the field of empiricism and placed upon a rational basis.

Brugsch and Schittenhelm² have demonstrated that in gout the uric acid forming substances are not metabolized as completely nor eliminated as promptly as they are in the normal conditions; there is an increase of uric acid in the blood which sooner or later is deposited in certain locations, giving rise to local and general symptoms.

This uric acid has two sources: first, that derived from the katabolism of the body tissues and known as *Endogenous* uric acid, and, second, that derived from the food and known as *Exogenous* uric acid.

The endogenous uric acid can be reduced to a minimum by giving a sufficient amount of carbohydrates and fats to cover the heat and energy needs of the body and by regulating exercise.

The exogenous uric acid, which is derived solely from the food and is by far the most important, can be largely controlled by an intelligent selection of diet.

This is possible only since a vast amount of patient and accurate research work has been done on the chemistry of the nucleoproteids. This work has shown that uric acid is derived solely from the purine bodies which are found in the nucleoproteid of cell nuclei.

In addition to this, further quantitative chemical and physiological tests have been made which have shown how much uric acid may be derived from the different varieties of meat. Thus, sweetbreads, liver, kidney, anchovies and sardines head the list of meats, while lentils and the legumes are the only vegetables having a quantity of purine bodies worthy of practical consideration. Milk, butter, cheese, cereals and

fruits are practically purine free, and the green vegetables have only a trace. Tea,³ coffee, cocoa, and chocolate should be considered on account of their effect on the ferments and enzymes which they may influence unfavorably, but they are of no importance as uric acid-forming bodies because the purines which they contain are methyl purines and are eliminated almost entirely as such, and not as uric acid. Alcoholic drinks, especially beer, and the fermented beverages are objectionable for the same reason.

From the above it will be seen that a certain class of foods, and these only bear a definite relation to uric acid. A knowledge of these facts makes the writing of a diet in gout or any uric acid diathesis a simple matter, for we can after due consideration of the above essential point, still modify the diet to suit whatever variety of gastro-intestinal disturbance may be present.

In recent years there has been a change in opinion with regard to the therapeutic use of water. Formerly it was almost the universal rule to advise every patient to drink large quantities of water, just how much was usually left to the patient's judgment. It was known to be the great diluent, and solvent for the exchange of materials in the body, it diluted toxins and noxious substances and favored elimination. It was ordered in all cases of constipation without regard to other conditions, and only forbidden at meals.

In the practice of this simple and apparently harmless hygienic rule it is more than probable that some errors were made.

There is no objection to the use of moderate quantities of water with meals, unless it is used to wash down the food before it is thoroughly masticated, and there are some experiments to show that it is decidedly beneficial. That water⁴ taken with meals dilutes the gastric juices and so materially impairs digestion is no longer accepted, for it has been shown that even when the stomach contains food, the water which is swallowed does not mix with the stomach contents, but by a peculiar contraction of the stomach walls⁵ is made to flow along the lesser curvature to the pylorus where it is soon expelled, leaving the solid food to further liquefaction and digestion.

There are however several conditions in which the too liberal use of water is inadvisable or even harmful.

The free use of water is very frequently advised in cases of constipation, but if this occurs in connection with atony, dilatation of the stomach, or enteroptosis, all fluids should be limited in quantity because of their relatively greater weight and consequent tendency to increase stretching and sagging of weakened viscera and ligaments.⁶ This should be remembered in ordering a milk diet, especially if the patient is not confined to bed.

In the treatment of nephritis, the suggestion to flush out the kidneys by drinking large quantities of water seems such a simple and rational procedure that it is often ordered rather indiscriminately regardless of the contra-indications. This procedure is applicable to certain cases, such as nephritis in the acute infections, but in those chronic cases in which the blood pressure is already above normal, when œdema is present, or when the kidney disease is accompanied by an uncompensated heart lesion, fluids should not be increased above normal quantity.

There exists a rich and increasing literature on the role of the inorganic salts in disease of nutrition and metabolism. Finkelstein, Meyer, and Zerny, as well as many others, have greatly increased our knowledge of physiology and pathology by their studies of salt metabolism in infants, and have shown that the inorganic salts are by no means the negligible factor they were once supposed to be.

It is to the importance of salt in the diet of nephritics that attention is called in this place. The salt free or salt poor diet is mentioned in recent text-books with faint praise. One popular text-book gives less than a line, and a certain system devotes an inch paragraph to its discussion, while some of our eminent leaders report failure in its use.

The subject requires more careful attention than it has received. Widál⁷ and his students have been especially prominent in advocating the use of a salt poor diet in nephritis, and they are quoted by every one who discusses the subject.

Of Widál's work, Magnus Levy³ says: "In the whole history of metabolic therapy, I know of not a single observation of such simplicity, clearness, and absolute certainty which can be set beside it. With the simple experiment which has been confirmed many times, the importance of has been positively determined."

Briefly, this experiment was as follows: A pa-

tient suffering with parenchymatous nephritis and presenting marked œdema, was placed on a daily diet of three and a half liters of milk which contained 5.5 grams of common salt. There was a loss of 5.5 kg. in weight, an additional excretion of 33 grams of salt, and a disappearance of the œdema. Next, 10 grams of salt was added to the same milk diet with the result of an increase of 2 kg. in weight, retention of 36 grams of salt and the reappearance of the œdema.

In order to demonstrate that these changes were not due to peculiar property of the milk itself, the following experiment was made: The patient was placed on a mixed diet which contained 400 grams of meat, but was of the same caloric value, and contained the same amount of protein and water as the milk diet but only 1.5 grams of salt, that is, four grams less than the milk diet.

The result was almost identical with that on the pure milk diet. In eleven days 35 grams more of salt was excreted than was taken, and the weight decreased. Then to this same diet 12.8 grams of salt was added daily with the result that the œdema reappeared, the weight increased 7 kg. in seven days and 49 grams of salt was retained.

Further observations of a similar character were made, each withdrawal of salt from the diet was accompanied by a disappearance of the œdema. The essential features of these experiments have been repeated by many other observers. Magnus Levy reports two cases of severe parenchymatous nephritis which had been treated by all other means for five or six months. Digitalis, digitalin, theocin, diuretin, theobromine, potassium acetate, calomel, salines, sweating, tapping, all had been used without avail. On a salt free diet, one of these, a boy of fourteen, lost 15 kgs. in three or four weeks. In the other, there was little change during the first four weeks; later 30 kgs. in weight were lost, the œdema disappeared, and during this time there was a loss of 300 grams of salt.

Without doubt there are diseased kidneys which are capable of excreting large quantities of salt, where the addition of salt to the diet is not followed by retention, but by a corresponding increased excretion, and certainly there are cases of severe œdema which remain obstinate in spite of all methods of treatment, the salt poor diet included.

That salt is the cause of œdema no one claims,

but in certain varieties of nephritis, especially the parenchymatous form, with some alteration in the capillary walls, salt is of great importance in the development of œdema.

The manner of its action is given by Widál⁹ about as follows: Take a case of nephritis in which the maximum capacity of the kidney is limited to 10 grams of salt. So long as the total amount in the daily diet does not exceed this quantity there is no retention, and if there be no other complication, such as failure of the circulation or obstruction, there will be no œdema.

In the second case, with a maximum capacity of 7 grams, a diet containing 10 grams would produce retention of salt and naturally of water also, producing œdema. Now give this patient a milk diet which, if 3.5 liters be taken, will contain very nearly 6 grams of salt, or about one gram less than he is capable of excreting. Under this condition the œdema would not occur, and if present would gradually disappear.

Now although the milk diet contains a relatively small amount of salt, it may fail to reduce the œdema and even do harm, for it may contain more salt than the kidneys are capable of eliminating. Suppose we have a case in which the kidneys can eliminate only 2 grams in 24 hours, as sometimes occurs when this patient receives a diet of 3.5 liters of milk containing 5.5 grams of salt, he is getting 3.5 grams more than he can eliminate, which is, of course, retained, and as he is getting a diet containing a large quantity of water, the œdema is produced quite readily.

The retention of salt and water is not limited to the connective and subcutaneous tissues but also involves the parenchymatous tissues including the kidneys. The œdema may and frequently does involve the kidneys. This still further reduces their capacity and, as a result, the salt excretion is still further reduced, falling to 1.5, 1, and even lower. That this is not all theory is shown by the effect of decortication of the kidney in acute suppression of urine, when all other means have failed to give relief. The removal of the capsule and the hemorrhage relieves the œdema, reduces the pressure on the tubules and permits them to resume their function.

From the foregoing it will be seen that milk is a good diet in nephritis but not always the best; it may not only contain more salt than can be eliminated, but more protein and water than

is needed. (30 grams protein per liter).

A practical question is, what shall this salt poor diet consist of if not of milk? It may consist of everything, provided salt is not added to it in the kitchen or at the table. Such diet will contain 1.5 or 2 grams of salt. Several physicians¹⁰ have lived on a diet containing less than 2 grams of salt per day for from 25 to 51 days without unfavorable symptoms or inconvenience. Most of us use from 12 to 20 grams of salt per day in our food, most of which is simply a condiment.

When a patient finds such a diet tasteless, one or two grams may be added at table. Other condiments of vegetable origin may be used instead, and with care and thought quite a variable diet may be provided.

1720 Connecticut Avenue, N. W.

REFERENCES.

1. Bickle. Veroffentlichung, Balneological Gesellschaft, in Berlin, 1910, p. 42.
2. Brugsch. und Schittenhelm, Der Nuklein Stoffwechsel und seine Storungen.
3. H. Strauss, Diatbehandlung, Berlin, 1909.
4. Hawk. Archiv. Int. Med. 1911, Vol. VIII, p. 382.
5. O. Cohnheim, Der Physiologie der Verdauung und Ernährung, Berlin, 1908, p. 18.
6. Archiv. f. Verdauung Krank. Band. XVIII, Heft. 1, p. 79.
7. Widal. Die Kochsalzentziehungskur, in der Brightschen Krankheit, Verhandlungen des XXVI Kongress, fur Innere Med., Wiesbaden, 1909.
8. Magnus Levy, Berl. Klin. Woch. No. 3, 1911.
9. L. C.
10. Widal, L. C.

SOME OBSERVATIONS UPON THE TREATMENT OF SYPHILIS.*

By C. O. ABERNETHY, B. S., M. D., Raleigh, N. C.

The method employed in the treatment of syphilis should be selected according to the indications. No method should be condemned until it has been given a thorough trial, nor should one be too quick to accept the recommendation of the enthusiast. There are several different methods with which the most of us are familiar, and these can be obtained by reference to the various text-books on the subject. For instance, mercury by the mouth, by injection, or by inunction; and in combination with the iodides. Salvarsan, subcutaneously, intramuscularly, or intravenously; and in combination with mercury and the iodides.

Mercury and the Iodides.—We are all familiar with the fact that mercury and the iodides will cure syphilis because thousands of cases have been cured by them and remained cured. The method of their administration is a matter of selection. However, there have been cases which have not been materially benefited by the use of these agents, the symptoms growing worse under the most vigorous medication. Whether this is due to the method of administration I am not prepared to say. In these cases, therefore, some other method or drug must be employed.

Salvarsan.—The results from the use of salvarsan have been very disappointing in the hands of those who thought they had a drug with which all cases of syphilis could be cured by a single injection. It is very generally agreed that such is not the case; that many cases require several repeated injections and other medication also. On the other hand, salvarsan has a place in medicine which, so far as our present knowledge goes, cannot be taken by any other drug. The results obtained by its administration early in the disease and in late manifestations where mercury and the iodides have failed are very gratifying. Probably the greatest value is in the so-called abortive treatment, where, after its administration, the secondary symptoms never appear, or, if present, clear up at once.

The method of administration seems to be one of individual preference. Personally, I prefer the intravenous injection. The method employed is to cut down on the vein and insert a cannula. I like this best because it appears to be easier than some of the other methods, and can be done more quickly and, I think, with less danger to the patient.

Care should be exercised in the selection of the dosage, in the preparation and administration of the drug, and it should be administered only to selected cases. Probably some of the deaths and untoward effects due to its administration could have been prevented by observing the above precautions.

A case illustrating a so-called contra-indication:—Patient was a well developed man thirty-five years of age who had a typical chancre and the secondaries. When we saw him he was suffering with intense headaches, with only temporary relief. Examination of the urine showed a typical picture of acute

*Read before the North Carolina Medical Society, at Hendersonville, N. C., June 18, 1912.

nephritis—scanty, high colored urine; specific gravity 1030; loaded with albumen and many blood and epithelial casts. Diagnosis of acute nephritis, probably syphilitic, and uremia. Administered 0.5 gm. salvarsan intravenously, and instituted treatment for uremic symptoms. Patient began to rapidly improve and left the hospital two weeks later with urine practically free from albumen and casts. Was given bichloride of mercury, grain 1-25, every four hours. Eight weeks later urine was normal. Wassermann reaction still positive. A second injection of 0.5 gm. salvarsan was given and the mercury continued. Another Wassermann will be made in a few weeks.

This case shows conclusively that one injection of salvarsan does not always cure, and that the cause of nephritis must be determined before it becomes a contra-indication.

The Wassermann Reaction.—I believe the Wassermann reaction is a very important adjunct in the treatment of syphilis: first, it gives one definite information as to the nature of the disease; second, it indicates whether the treatment is producing any effect on the blood; third, it gives definite information when the patient is completely cured. The method employed is to have a Wassermann for the diagnosis; then from time to time as the treatment progresses, and finally after all treatment has been discontinued.

CONCLUSIONS.

1. The best treatment of syphilis is the mixed treatment and a careful selection of the proper drug must be made for each individual case.

2. Mercury and salvarsan are both very important drugs in the treatment of syphilis.

3. While salvarsan has not proven what Prof. Ehrlich expected, yet it occupies a place in the treatment of syphilis that cannot be supplanted by any other drug in our present knowledge.

4. The most satisfactory results are obtained by the intravenous injection of salvarsan repeated if necessary, and in combination with other drugs.

5. Many of the untoward effects are due to faulty technique in the preparation and administration of the drug.

6. The liberal use of the Wassermann reaction should regulate the treatment of syphilis.

SYMPTOMS AND DIAGNOSIS OF DISEASES OF THE THYROID GLAND.*

By W. W. VEST, M. D., Clarksville, Va..

During the last few years the diseases of the thyroid gland have attracted wide-spread attention. In giving the symptoms and diagnosis of diseases of the thyroid, I will take, first and briefly, simple goitre.

The enlargement in simple goitre may be uniform throughout the entire gland, or affect only one lobe, or the isthmus alone. As a rule, the enlargement causes no inconvenience except the deformity. It attains various sizes. Characteristic of all goitres, they rise when swallowing. A goitre may cause dyspnea by pressure on the trachea, or make swallowing difficult by pressing on the œsophagus. We sometimes see swelling of face and head; headache and drowsiness may occur from pressure on veins of neck when the goitre is behind the sternum.

The most important disease of the thyroid gland is exophthalmic goitre, or hyperthyroidism, which is very different from ordinary goitre or simple enlargement of the thyroid gland; nor is there any disease in which familiarity through repeated contact is of greater aid in making a diagnosis than is exophthalmic goitre.

As a rule, the onset is slow, showing one or more symptoms at first, which gradually increase in severity, to which more aggravated symptoms are added. The course of the disease may be marked by exacerbation of symptoms, while in the interval the patient may approach the normal or nearly so. Among the first symptoms are restlessness, nervousness, feeling of impending danger and palpitation of the heart. Tachycardia is the most usual heart symptom, the pulse ranging from 100 to 170 sometimes as fast as 200 per minute, especially following exercise or excitement. Other important symptoms are exophthalmos, swelling and protrusion of the eye-balls. The eyes have a staring appearance; they show a large amount of white, and when an attempt is made to close them, the lids cannot cover the entire balls.

The eye symptoms are many, and one or more may be present. Under the name of Graefe's sign, we have a condition of lagging of the lids with eye movements; Stellwag's sign, a widening of the palpebral fissure due to persistent re-

*Read as part of the symposium on Diseases of the Thyroid Gland before the South Piedmont Medical Society, at South Boston, Va., April 16, 1912.

traction of the upper lid; Moebius' sign, a condition in which there is lack of power of convergence. Occasionally we find ulceration of the cornea resulting from inability of the lids to protect the eye.

The thyroid gland may be much enlarged or slightly so, and the enlargement may involve one or both lobes. There may be marked pulsation, and a bruit felt. Muscular tremor is nearly always present (about 8 to 9 to the second); it is sometimes the first symptom to make a patient consult his physician. It is felt best by laying the palm of the examiner's hand on the extended fingers of the patient. In advanced cases there is great muscular weakness, the patient becoming easily fatigued. It may become so serious that the muscles may give out suddenly and a loss of contraction of certain groups of muscles occur unexpectedly.

Other general symptoms are sweating, anemia, loss of strength, and emaciation in most cases. We also have transient symptoms, such as vomiting or diarrhœa. During these times the thyroid gland is sometimes found in a condition aptly compared to a lactating breast. Pigmentation of the skin is common and bronzing not unusual. The mental symptoms are progressive and in some melancholia may be very profound, bordering on mania. There is marked loss of weight and strength. Another symptom of interest, noted by Charcot, is diminished electrical resistance due to moisture. Prof. Kocher finds on examination of the blood an increased lymphocytosis and a diminished leucocytosis, but in itself the blood examination cannot determine the diagnosis, and at most only confirm one already made from a review of the above symptoms.

Drugs, such as thyroid extract, iodine and iodothylin aggravate the symptoms and in this way may aid in the diagnosis of the disease.

Myxœdema is a disease in which marked nutritional changes take place in the body due to the absence, atrophy, removal or inactivity of the thyroid gland. The first symptom noted is that the face is swollen, flattened, and broadened. The entire body appears swollen and dropsical, but does not pit on pressure and is firm and resistant. The nose is broad; and the mouth flat and large. The hands lose their natural shape, being described by Gull as "spade-like." The face is ill-shaped, and the gait labored. The skin is dry, yellow or pallid and poorly nourished. The hair falls out, and the eye brows disappear. The expression is al-

tered, and the patient is stupid. There is muscular feebleness and deficiency in holding the head erect. Subnormal temperature is a characteristic symptom. The heart is feeble. Occasionally the urine shows albumen.

Cretinism, sometimes termed congenital myxœdema, depends on the same cause as does myxœdema, in that the curious systemic changes which develop in the patient are the result of an absence of the secretion of the thyroid gland. It occurs in two forms,—endemic and sporadic.

The symptoms may be noticed by the time the patient is a year old, but rarely develop before the second year. At this time the child appears stunted and mentally dull. The head, hands, and feet are out of proportion to the trunk, the limbs being larger. The eyes have a sleepy, dull appearance, and the face appears stupid. The nose is flat and broad, and the lips protruding and heavy; at times there is a dribbling of saliva. The tongue is swollen, and often protrudes. The head is not carried erect, but to the side. The legs resemble rickets—bent and short,—and the skin has a bluish swollen appearance, and looks badly nourished. The hair is brittle and scant. The changes in the blood show a diminished quantity of hæmoglobin. On autopsy an absence of thyroid gland is noted.

Clinical Reports

ATROPHIC RHINITIS.

By D. D. WILLCOX, M. D., Petersburg, Va.

A few years ago I reported for the *Virginia Medical Semi-Monthly* two cases of atrophic rhinitis cured by the assistance of dionin. I now wish to report three other cases which I have since had the pleasure of curing by the same method of treatment.

The first case, a female child of five years, came to me three years ago. Semi-weekly I personally cleansed the nasal cavities of all scabs and other secretions, after which I sprayed the parts thoroughly with a 3 per cent. solution of dionin. The mother was then directed to spray the nose morning and night with a saturated solution of boric acid, followed by the spray of dionin.

This girl is now eight years old and in perfect health. She had no adenoids when I first saw her, the atrophic conditions having destroyed them.

The second case was that of a young man of

eighteen, whom I saw four years ago. His treatment was the same and his recovery is complete so far as the scabs and secretions are concerned. Of course, he has more breathing space in the nose than is found normally on account of the atrophied turbinates.

The third case was that of a young girl of nineteen, who came to me about a year ago. Her treatment was similar to the two previously mentioned and her recovery likewise complete.

The patient in the first mentioned case has practically normal breathing space, due, I suppose, to the child's age, the atrophic process not having time to work as much destruction to the turbinates.

The average duration for the treatment of this condition should be ten months. I always continue treatment two months after the disappearance of all scabs and tenacious mucus.

Each of these patients were under weight, anemic and possessed limited breathing capacity, but otherwise showed no signs of tuberculosis. Tonics containing iron were used in each case together with milk and eggs. In the last two cases I employed the malt tonics.

24 West Tabb Street.

Proceedings of Societies, Etc.

The Medical Examining Board of Virginia

Met in Richmond, Va., June 18, 1912, at 8:30 P. M.

On roll call the following members were present: Drs. R. S. Martin, Warinner, Chaffin, Corey, Barney, Glasgow, Holladay Boyd, Rennie, Wright, Williams, James, Dew and Old. Board called to order by Dr. Warinner, president *pro tem*.

The minutes of the last meeting were read and approved.

Dr. Jarman, of Farmville, was allowed to make a statement in regard to allowing Dr. Veech reciprocity.

Dr. Barney reported that his committee did not think it advisable at the present time to hold practical examinations.

The election of officers being next in order, Dr. R. S. Martin, of Stuart, Va., was elected president unanimously. Dr. Herbert Old, of Norfolk, Va., was elected secretary and treasurer.

The question committee reported that they had examined the questions of the various sections and found them satisfactory. Dr. Wright moved that each examiner send to the chairman of the question committee two copies of their questions at least 10 days before the examination; adopted.

Drs. Louis Mackall, Jr., R. S. Short, H. M. Brooks and M. H. Looney were granted verification certificates as they had met the requirements of Sec. 8, sub-section e, of the new law.

Dr. Wright offered the following resolution, which was adopted:

Resolved, That the members of the Medical Examining Board of Virginia endeavor to have the practitioners in their respective districts comply with the law relative to registration; that the secretary send each physician a circular letter calling their attention to the law and the penalty for violation of same, and a copy of the law applying to registration.

After much discussion concerning the employment of monitors for the present examination, Dr. Corey offered the following resolution, which was adopted:

That the report of the executive committee favoring the employment of monitors for the present examination be concurred in. The Board decided to pay each of the monitors \$5.00 per diem.

Drs. Barney, James and Boyd were appointed on the auditing committee.

Dr. Warinner offered the following resolution, which was adopted:

A committee be appointed to draft suitable resolutions of esteem in honor of our late president, Dr. Rawley W. Martin, and to suggest the advisability and best steps toward the erection of a lasting memorial to him.

The Board adjourned to meet at 10 A. M. Wednesday, June 19.

Wednesday, June 19.—Meeting called to order by the president. Members present were: Drs. Corey, Holladay, Barney, Williams, Dew, Glasgow, Warinner and James. On motion of Dr. Dew the minutes of the previous meeting were not read. The secretary was directed to publish in the next proceedings of the Board a photograph of Dr. Rawley W. Martin and a short sketch of his life. Dr. Barney offered to furnish and present, in the name of the Board, a granite marker suitably inscribed to be placed at Gettysburg in honor of Dr. Rawley W. Martin, who fell, seriously wounded, in Pickett's charge on July 3, 1863. Dr. Barney's offer was accepted with thanks. Board decided to meet next in Richmond, December 17-20, 1912.

The president appointed Dr. Chaffin a member of the executive committee.

A committee was appointed to draft a resolution of thanks to Dr. Herbert Old for his work as a member of the legislative committee. This committee consisted of Drs. Holladay, Glasgow and James.

Drs. Dew, Barney and Williams were appointed a committee to draft resolutions of thanks to Dr. R. S. Martin, the outgoing secretary.

Dr. Dew moved that a committee of three be appointed to consider the various by-laws concerning reciprocity and to report to-morrow night; motion adopted and Drs. Dew, Glasgow and James were appointed on same.

Dr. Barney made the following motion, which was carried:

That Dr. Dew be authorized by this Board to use a sum not to exceed \$50.00 of the fund furnished by the State Society for such purposes, to aid in the prosecution of the State versus A. B. Dresser now pending in the Court of Appeals.

Dr. Glasgow was appointed on the question committee.

Board adjourned to meet Thursday, June 20, at 8:30 P. M.

Thursday, June 20.—Board called to order by the president. All members present. Dr. Warinner made report of committee on resolutions on the death of Dr. Rawley W. Martin, which was adopted, as follows:

Whereas, It has pleased an all wise Providence to call from his earthly labors to the enjoyment of his reward, our esteemed friend, Dr. Rawley W. Martin:

Be it Resolved, That in his death, we have lost one whom we mourn with sincere sorrow, and whose presence will be sadly missed; whose true nobility of character was shown in every act; whose warm heart and cordial manner won fast friends in every association of life; whose high sense of honor and justice made wise his counsels; whose example has left an impress for good and high ideals in the lives of others.

In regard to a lasting memorial to our esteemed friend, your committee suggests that an organization, known as the Rawley W. Martin Memorial Association, be organized with Dr. A. W. Terrell, of Lynchburg, Va., as president, and Dr. R. S. Martin, of Stuart, Va., as secretary and treasurer; that these two gentlemen take immediate steps towards organization and collecting funds to that end.

We do not consider this the time to suggest the form of memorial, leaving this to be decided by the association.

P. W. Boyd,
O. C. Wright,
J. E. Warinner,
Committee.

In this connection, the following resolutions speak for themselves:

Whereas, The medical profession has suffered a grievous loss in the death of R. W. Martin, M. D., of Lynchburg, Va., and

Whereas, The osteopathic profession of the State has been brought in close personal touch with the late Dr. Martin, through his affiliation with the State Board of Medical Examiners; and

Whereas, This professional relationship has been most congenial and advantageous to us, and has served to emphasize and distinguish the high ideals and lofty purpose of Dr. Martin; and

Whereas, The members of the Virginia Osteopathic Society share in this loss and have of one accord expressed their sorrow and grief; therefore

Be it Resolved, That we, the members of the Virginia Osteopathic Society, in convention assembled, extend our sympathies to his bereaved family, and to his professional brethren; and to that end

Be it Further Resolved, That these resolutions be spread upon the minutes of the meeting, and that copies be made therefrom and distributed to his widow, to the State Board of Medical Examiners, and to the Medical Society of Virginia.

VIRGINIA OSTEOPATHIC SOCIETY,

J. Meek Wolfe, M. D., D. O., Pres.
W. D. Bowen, M. D., D. O. Sec.

In convention, Lynnhaven Hotel, Norfolk, Va., June 15, 1912.

The auditing committee made the following report, which was adopted:

We beg to report that we have examined the treasurer's books, bank book and slips, and find all funds accounted for, and a balance in the Patrick County Bank, on June 13, 1912, of \$838.52.

J. N. BARNEY,
R. B. JAMES,
P. W. BOYD.

Dr. James made the following report, which was adopted:

Your reciprocity committee begs to report that the applications of the following gentlemen have been approved and we recommend that they be granted reciprocity: Dr. C. A. Goettling, University of Maryland, 1910; Maryland Board, 1910, Dr. E. C. LeRoy Miller, University of Michigan, 1899; Michigan Board, 1899.

R. B. JAMES,
E. C. WILLIAMS,
J. E. WARINNER.

After much discussion pro and con, the following report by Dr. Glasgow, chairman of special committee to consider reciprocity clause in by-laws, as amended by Dr. Wright, was adopted:

The applicant must have passed an examination before a State Examining Board, satisfactory to this Board—which Board requires substantially the same medical branches as is required by the Virginia Board; and must have practiced two years in said State. The Board may, if recommended by the reciprocity committee, accept other experience in lieu of two years practice.

Dr. Rennie offered the following resolution, which was adopted:

That the secretary express to the president and faculty of Richmond College the sincere thanks of this Board for the loan of the rooms, and chairs, and desks for the present session of the Board.

The president appointed the following committee to revise the by-laws and report at the December meeting: Drs. Barney, Wright and Glasgow.

The secretary was instructed to issue a verification certificate to Dr. J. M. Taulbee after he had met certain requirements. Dr. Fisk was refused reciprocity.

After much discussion as to what constituted satisfactory evidence so as to issue a verification certificate, the following as offered by Dr. Wright was adopted:

That he produce a license or affidavit that he practiced in Virginia prior to 1885, or other reliable testimony.

The Board adjourned to meet Friday morning at 10 A. M.

Friday, June 21.—The Board was called to order by the president. Members present were: Drs. Wright, James, Holladay, Warinner, Williams and Barney. Drs. Veech, Quackenbush, Parker and Woodruff were granted reciprocity provided they meet satisfactory all the requirements of the Board.

Dr. Barney introduced the following resolution, which was adopted:

Whereas, The State Board of Medical Examiners in session June 20, 1912, granted reciprocity to two physicians, and

Whereas, There is doubt of the legality of such action under the direct order of the Board at the Lynchburg meeting, December, 1911—said order not being amended at the time of passing report of the reciprocity committee concerning two applications.

Be it Resolved, That the secretary obtain from Attorney General a legal opinion for the future conduct of this Board.

Board adjourned sine die.

R. S. Martin, President,
Herbert Old, Sec'y.-Treas.

Board adjourned sine die.

R. S. MARTIN, *President*.

HERBERT OLD, *Secretary-Treasurer*.

QUESTIONS FOR EXAMINATION OF APPLICANTS FOR CERTIFICATES OF LICENSE TO PRACTICE IN VIRGINIA, JUNE, 1912.

Hygiene and Preventive Medicine.

Examiner, Dr. W. W. Chaffin, Pulaski, Va.

1. What is the safest disposal of public sewage? Describe the process.

2. Briefly outline the precautions to be taken in a community where typhoid fever has developed.
3. (a) For the purification of large quantities of water, such as is needed for large cities, what is the most available, satisfactory and efficient method?
(b) Construct a rough outline of a general arrangement of a filter plant.
4. (a) What is the difference in antitoxines and bacterial vaccines?
(b) Give example of each.
(c) How should they be used?
5. Give prophylaxis of hook worm disease.

Medical Jurisprudence.

Examiner, Dr. P. W. Boyd, Winchester, Va.

1. Give proper manner of making post-mortem examinations.
2. What would be the appearance of a body that has been drowned, and not to have been in the water more than two or three hours?
3. What constitutes a "live birth?"
4. What is the appearance of an infant born alive at full term?
5. What do civil and criminal responsibility imply?

Chemistry.

Examiner, Dr. J. N. Barney, Fredericksburg, Va.

1. Name four classes of the compounds of C?
2. Tell something of Bi., naming its medicinal salts, and the preparation of the sub-nitrate.
3. What do you mean by proteolytic changes, and give an example.
4. Name a source of the following:

| | |
|-------------------------------------|----------------|
| 1 . Myronic Acid. | 3 . Dextrin. |
| 2 . C ₂ N ₂ . | 4 . Paraffine. |
5. Name five substances obtained from the destructive distillation of crude petroleum.
6. What are the amido-acids, and what is their importance?
7. In a case of infantile diarrhoea, how could you determine if 1| protein, 2| fats, or 3| starch were undigested by an examination of feces?
8. Give a test for 1|, acetone, 2|, bile pigments in urine.
9. Give the solubility or the reverse of following:

| | | | | |
|--------------------------|----------|----------|--------|----------------------|
| 1, Ag No. ₃ . | 3, Pb SO | 5, Na Cl | 7, FeS | 9 Na No ₃ |
|--------------------------|----------|----------|--------|----------------------|
- 2, Ca₃ (P O₄)₂ 4, Ca Co₃ 6, Mg Cl₂ 8, N₂ SO₄, 10, Zn O.
10. Give the chemical composition of average atmospheric air.
11. Name chemical constituents of urinary calculi.
12. Give chemical test for presence of morphine.

Pathology and Bacteriology.

Examiner, Dr. Lewis Holladay, Orange, Va.

1. What is meant by the term "compensation" as used in heart diseases? Trace the course of events due to broken compensation.
2. Give the etiology and pathology of erysipelas? Through what channels does it spread?
3. Discuss syncope, shock and collapse, and state what features are common to all three conditions.
4. Distinguish between hemoptysis and hemothorax. Name the diseases of the organs that may produce the latter.
5. Describe the phenomenon known as Cheyne-Stokes respiration. State some of the conditions in which these respirations appear, and give the prognosis of same.

6. Give the pathology of nephrolithiasis.
7. The power to induce (biologic reaction) the formation of what distinguishes toxins from other poisons—such as alkaloids?
Of what disease is the spirochaeta pallida the exciting agent?
8. How do bacteria multiply? Mention three pathogenic bacteria that may be conveyed from the soil. Describe the bacillus tetani?
9. How does an antitoxin differ from a vaccine?
10. How would you prepare and stain a specimen of spu'tum to examine for the bacilli of tuberculosis?

Practice of Medicine.

Examiners, Drs. J. G. Rennie, Petersburg, and E. C. Williams, Hot Springs, Va.

1. Differentiate from one another—apoplexy, epilepsy, alcoholic intoxication and uremia.
2. Give the etiology and clinical symptoms of catarrhal (broncho or lobular) pneumonia.
3. Differentiate cardiac hypertrophy from cardiac dilatation.
4. Define: urticaria; herpes zoster; asigmatism; amnesia; aphasia.
5. Give the clinical symptoms and treatment of acute nephritis.
6. Describe a typical case of measles from the time of infection to its close.
7. Give the clinical symptoms of eczema and its treatment, including diet.
8. Give the principal measures for protection against malarial, typhoid and yellow fever.
9. Give the treatment for follicular tonsillitis.
10. What factors determine normal blood pressure and what is the normal pressure for an adult?

Obstetrics and Pediatrics.

Examiner, Dr. Herbert Old, Norfolk, Va.

1. Diagnosis of pregnancy at third month.
2. Diagnosis of extra-urine pregnancy.
3. (a) Dangers of the use of chloroform during pregnancy and labor. (b) Indications for use of an anesthetic during labor.
4. What constitutes morbidity during the puerperium and mention most important means of preventing same.
5. Management of the third stage of labor.
6. Mention the indications for the induction of labor.
7. Management of a case of pharyngeal diphtheria.
8. Causes and diagnosis of a case of empyema.
9. Differentiate between sub-acute cervical adenitis, tuberculous adenitis of bovine type, and tuberculous adenitis of human type.
10. Give the number of calories and the percentage of fat, sugar, proteid, and lime water in the following milk mixture:

| | | |
|--------------------|-----|--------|
| Milk, 4 per cent., | 15 | ounces |
| Sugar of milk | 1½ | " |
| Lime water, | 1½ | " |
| Plain water, | 13½ | " |
| | 30 | " |

Anatomy.

Examiner, Dr. O. C. Wright, Jarratt, Va.

1. Name and describe the nerves which supply the eye.
2. Describe the aorta and name its branches.
3. Locate and give description of the kidney.

4. Give common characters of ribs—name and tell in what way the peculiar ribs differ from the others.
5. Name and describe the adductor muscles of the thigh.
6. Describe the ureter.

Histology.

1. Name the elementary tissues of the body.
2. Name the forms of muscle and state principal location of each.
3. Give principal sources of white and red blood corpuscles.
4. Give histological structure of spleen.

Surgery and Gynecology.

Examiner, Dr. H. W. Dew, Lynchburg, Va.

1. Describe operation for removal of the glands of the neck; what vessels and nerves would likely be injured, and how avoided?
2. Give diagnosis and treatment of synovitis of knee-joint (non-tubercular).
3. Diagnosis and treatment of fracture of neck of the femur.
4. Give the operation for radical cure of umbilical hernia; name tissues that are brought together.
5. Differential diagnosis between congenital and acquired talipes.
6. Etiology and treatment of osteo-myelitis; what part of the bone does it usually attack?
7. Give diagnosis between haematocele and hydrocele of tunica vaginalis, with treatment of each.
8. Etiology, diagnosis and treatment of pyelonephritis.
9. What relative position to each other, do the ends of the bone occupy in a Colles fracture? Give method of reductional treatment.
10. Diagnosis and treatment of acute anterior; acute posterior urethritis.

Gynaecology.

11. Describe in detail operation for complete rupture of perineum.
12. Give treatment of retroversio uteri.

Physiology.

1. Describe normal urine: giving color, specific gravity, reaction, visible contents and amount daily secreted.
2. Give amount of solids secreted daily by a healthy man. Of what do these solids mainly consist?
3. Under what conditions does albumin appear in urine?
4. Give methods of stimulating muscles to contraction.
5. What is meant by clonic and tonic contraction of muscles?
6. Name the ductless glands giving location of each.
7. What substances must be taken into the body in order to afford proper nutrition to the cells and in what forms are these substances excreted from body after being utilized by cells?
8. Give function and location of gall bladder and its connections with other organs.
9. What condition of the blood causes the phenomena known as dyspnoea, apnoea and asphyxia?
10. As regards respiration, what is meant by tidal air? Reserved air? Residual air?

Embryology.

1. Name different types of embryonic cells? In what structures of body is each type chiefly concerned?
2. From what sources does the placenta derive its structure and what are the three functions of placenta in foetal life?

Therapeutics.

Examiner, Dr. J. E. Warinner, Richmond, Va.
R. F. D. 4.

1. Classify emetics and give two examples in each class.
2. Give therapeutic uses of digitalis and the objections to its long continued use.
3. Give uses of iodine and name preparations most prescribed internally.
4. Name the urinary acidifiers and state whether the bi-carbonates should be given before or after meals for such effect.
5. Give the leading action of each of the three principal mineral acids.

Toxicology.

1. Give symptoms, minimum fatal dose and treatment of poisoning by arsenic.

2. When lucifer match heads are taken into stomach what is best treatment and what should be especially avoided?
3. Give chemical and physiological antidotes for opium, strychnine and carbolic acid.

Materia Medica.

Examiner, Dr. Robert Glasgow, Lexington, Va.

1. State difference between a tonic and a stimulant, giving an example of each.
2. What are the preparations and doses of arsenic?
3. What is alcohol and what its medicinal uses?
4. Give doses of following: creosote, sulphate, spartein, phenacetin, caffein citrate, atropine, potassium iodide.
5. Give the classification of gentian, chloroform, magnesia sulphate, strophanthus santonine, viburnum prunifolium.
6. What are the principal medicinal uses of digitalis?
7. What are (1) antiseptics, (2) germicides, (3) deodorants? Giving an example of each.

| INSTITUTIONS REPRESENTED BY APPLICANTS WHO CAME BEFORE THE MEDICAL EXAMINING BOARD OF VIRGINIA. SUMMER SESSION, AT RICHMOND, VA., June 18-21, 1912. | | | | | Total Number of Applicants from each College | Total Number of Applicants Licensed from each College | Total Number of Applicants Rejected from each College | Partial Examination | Incomplete or Withdrew |
|---|-----|----|----|----|---|--|--|------------------------|------------------------------|
| American School of Osteopathy..... | 5 | 3 | 2 | .. | .. | .. | .. | .. | .. |
| Lincoln Memorial University | 2 | 2 | .. | .. | .. | .. | .. | .. | .. |
| Leonard Medical College | 14 | 4 | 10 | .. | .. | .. | .. | .. | .. |
| University College of Medicine | 21 | 20 | 1 | .. | .. | .. | .. | .. | .. |
| Medical College of Virginia | 33 | 28 | 4 | .. | .. | .. | .. | .. | 1 |
| Hospital College of Medicine | 3 | 1 | 1 | .. | .. | .. | .. | .. | 1 |
| Georgetown University | 1 | 1 | .. | .. | .. | .. | .. | .. | .. |
| Jefferson Medical College | 1 | .. | 1 | .. | .. | .. | .. | .. | .. |
| University of Virginia..... | 8 | 8 | .. | .. | .. | .. | .. | .. | .. |
| University of Pennsylvania..... | 3 | 3 | .. | .. | .. | .. | .. | .. | .. |
| New York University..... | 1 | .. | .. | .. | .. | .. | .. | .. | 1 |
| Johns Hopkins University..... | 2 | 2 | .. | .. | .. | .. | .. | .. | .. |
| Howard University | 3 | 3 | .. | .. | .. | .. | .. | .. | .. |
| Tennessee Medical College..... | 1 | .. | .. | .. | .. | .. | .. | .. | 1 |
| McHarry Medical College..... | 4 | 3 | 1 | .. | .. | .. | .. | .. | .. |
| George Washington University..... | 2 | 2 | .. | .. | .. | .. | .. | .. | .. |
| University of Louisville..... | 4 | 3 | .. | .. | .. | .. | .. | .. | 1 |
| Maryland Medical College..... | 5 | 2 | 3 | .. | .. | .. | .. | .. | .. |
| University of the South..... | 2 | 1 | 1 | .. | .. | .. | .. | .. | .. |
| Albany Medical College..... | 1 | 1 | .. | .. | .. | .. | .. | .. | .. |
| Baltimore Medical College..... | 3 | 3 | .. | .. | .. | .. | .. | .. | .. |
| University of West Tennessee..... | 2 | .. | 2 | .. | .. | .. | .. | .. | .. |
| University of Maryland..... | 2 | 2 | .. | .. | .. | .. | .. | .. | .. |
| Chattanooga Medical College..... | 1 | .. | 1 | .. | .. | .. | .. | .. | .. |
| University of Michigan..... | 1 | 1 | .. | .. | .. | .. | .. | .. | .. |
| College Physicians and Surgeons, Baltimore..... | 1 | 1 | .. | .. | .. | .. | .. | .. | .. |
| Woman's Medical College, Pennsylvania..... | 1 | 1 | .. | .. | .. | .. | .. | .. | .. |
| Non-graduates taking partial examination..... | 27 | .. | .. | .. | .. | .. | .. | .. | .. |
| Passed | .. | .. | .. | 19 | .. | .. | .. | .. | .. |
| Failed | .. | .. | .. | 6 | .. | .. | .. | .. | .. |
| Incomplete or withdrew | .. | .. | .. | 2 | .. | .. | .. | .. | .. |
| Totals | 154 | 95 | 27 | 27 | 5 | | | | |

**Alphabetically Arranged List of Applicants for
License to Practice Medicine, Surgery, Etc., Who
Passed Satisfactory Examinations Before the Medi-
cal Examining Board of Virginia During its Session
June 18-21, 1912, Richmond, Va.**

Adkerson, W. C., Lynchburg, Va., Univ. Col. of Med.
1912.
Akers, Walter C., Alum Ridge, Va., Univ. Col. of
Med., 1912.
Allen, Herbert A., Richmond, Va., Howard Univer-
sity, 1912.
Allen, J. R., Balty, Va., Med. Col. of Virginia, 1912.

Bagby, Albin F., Buffalo, N. Y., Med. Col. of Vir-
ginia, 1912.
Bailey, Wm. Ed., Craddock, Va., Leonard Med. Col-
lege, 1912.
Bancroft, Edward, Athens, Ga., Univ. Col. of Medi-
cine, 1912.
Bell, Haney H., Wilburn, Va., Amer. School of Osteo-
pathy, 1912.
Bibb, James L. L., University, Va., Univ. of Virginia,
1912.
Bowles, J. P., Johnsons Springs, Va., Med. Col. of
Virginia, 1911.
Bradley, E. R., Roxbury, Va., Med. Col. of Virginia,
1912.

- Bradshaw, C. L., Hemp, Va., Med. Col. of Virginia, 1912.
- Bray, Wm. E., University, Va., University of Virginia, 1912.
- Brown, Frederick D., Ruthville, Va., Leonard Med. School, 1912.
- Brown, William R., Philadelphia, Pa., Leonard Med. School, 1912.
- Chitwood, E. M., Baltimore, Md., Baltimore Med. Col., 1912.
- Clarkson, J. Wright, Richmond, Va., Med. Col. of Virginia, 1912.
- Cline, D. C., Dumfries, Va., Lincoln Memorial Col., 1911.
- Cloyd, J. A. Dublin, Va., Univ. Col. of Med., 1912.
- Coltrane, W. E. Zebulon, N. C., Med. Col. of Virginia, 1912.
- Cosby, L. F., Abingdon, Va., Med. Col. of Virginia, 1912.
- Courie, W. F., Richmond, Va., Med. Col. of Virginia, 1912.
- Cox, James H., Honaker, Va., Hospital College of Medicine, 1903.
- Cox, W. O., Fort Blackmore, Va., Univ. College of Med., 1912.
- Crawford, Baxter L., Richmond, Va., Univ. College of Med., 1912.
- Deane, Robert A., Richmond, Va., Howard University, 1912.
- Dickerson, E. P., Roanoke, Va., Univ. of the South, 1908.
- Dovell, Early Beauregard, Somerset, Va., Univ. of Louisville, Ky., 1912.
- Eanes, Richard H., Richmond, Va., Med. Col. of Virginia, 1912.
- Fields, Sterling O., Newport News, Va., Univ. of Penna., 1912.
- Fisher, Guy R., New Hope, Va., Med. Col. of Virginia, 1912.
- Funches, Perry F., Richmond, Va., MeHarry Med. Col., Nashville, 1911.
- Garrett, Corlas K., Lynchburg, Va., Amer. School of Osteopathy, 1912.
- Geisinger, J. F., Richmond, Va., Univ. Col. of Medicine, 1912.
- Gibbs, Morris W., Forest Depot, Va., Med. Col. of Virginia, 1912.
- Gills, Wm. L., Bedford City, Va., Johns Hopkins Univ., 1912.
- Givens, J. T., Norfolk, Va., MeHarry Med. Col., Nashville, 1912.
- Glasser, R. D., Norfolk, Va., Med. Col. of Virginia, 1912.
- Goettling, Chas. A., Middleburg, Va., Univ. of Maryland, 1910.
- Goodwin, W. H., University, Va., Univ. of Virginia, 1908.
- Haden, C. W., Richmond, Va., Med. Col. of Virginia, 1912.
- Hargrave, W. W., West Point, Va., Med. Col. of Virginia, 1912.
- Holmes, James B., Washington, D. C., Johns Hopkins Univ., 1912.
- Hooks, Arthur, Blackstone, Va., Med. Col. of Virginia, 1912.
- Howery, G. G., River, Va., Lincoln Memorial Univ., 1912.
- Hume, J. S., Charlottesville, Va., Univ. of Virginia, 1912.
- Johnson, Geo. F., Gordonsville, Va., Howard Univ., 1911.
- Kilgour, R. M., Bluemont, Va., Georgetown Univ., 1910.
- Land, H. I., Norfolk Va., Med. Col. of Virginia, 1911.
- Latane, H. A., Baltimore, Md., Univ. of Virginia, 1912.
- Lewis, A. W., Buffalo, N. Y., Med. Col. of Virginia, 1912.
- Luck, E. H. Richmond, Va., Med. Col. of Virginia, 1912.
- Luckert, Geo. S., Dunn Loring, Va., George Washington Univ., 1912.
- McBryde, Stuart, Fredericksburg, Va., Med. Col. of Virginia, 1912.
- McClure, B. B., Bon Air, Va., Med. Col. of Virginia, 1912.
- McKinney, J. T., Jr., Richmond, Va., Med. Col. of Virginia, 1912.
- McSparran, Joseph L., Dorchester, Va., Univ. Col. of Medicine, 1912.
- Marshall, Ligon J., Hinton, W. Va., Baltimore Med. Col., 1900.
- Martin, A. W., Washington, D. C., George Washington Univ., 1912.
- Miller, Edgar C. Leroy, Richmond, Va., Univ. of Michigan, 1894.
- Munday, James O., Jr., Burnley, Va., University of Virginia, 1912.
- Murdock, Monon T., Richmond, Va., Univ. Col. of Medicine, 1912.
- Neal, M. P., Richmond, Va., Univ. Col. of Medicine, 1912.
- Oast, S. P., Jr., Philadelphia, Pa., Univ. of Pennsylvania, 1911.
- Page, O. C., Cary, N. C., Univ. Col. of Medicine, 1912.
- Parker, Wellington H., Roncevert, W. Va., Univ. of Louisville, 1908.
- Phillips, J. C., Portsmouth, Va., Maryland Medical College, 1912.
- Poff, H. L. Salem, Va., Medical College of Virginia, 1912.
- Porter, W. F., Glamorgan, Va., University of Louisville, Ky., 1912.
- Putney, W. Reid, Richmond, Va., Univ. College of Medicine, 1912.
- Quackenbush, W. K., Midlothian, Va., Albany Med. Col., N. Y., 1895.
- Queed, A. M., Stafford, Va., Med. Col. of Virginia, 1912.
- Reed, J. W., Norfolk, Va., Medical College of Virginia, 1912.
- Roberts, Louis G., Columbus, Ga., Univ. College of Medicine, 1912.
- Simmons, W. D., Jr., Richmond, Va., University Col. of Medicine, 1912.
- Smith, C. C., Newport News, Va., Univ. College of Medicine, 1912.
- Smith, R. Emerson, University, Miss., University of Virginia, 1910.
- Smith, Roberta W., Lynchburg, Va., Amer. School of Osteopathy, 1912.
- Stone, John Boyd, University, Va., University of Virginia, 1912.
- Stover, J. F., Crab Bottom, Va., Univ. College of Medicine, 1912.
- Strode, Basil E., Amherst Courthouse, Va., Medical Col. of Virginia, 1912.
- Summers, B. E., Richmond, Va., Medical College of Virginia, 1912.
- Sylvester, Frank B., Richmond, Va., MeHarry Med. Col., Nashville, 1911.
- Thornton, V. A., Altavista, Va., Maryland Medical College, 1910.
- Vass, Rufus S., Raleigh, N. C., Leonard Medical School, 1912.

- Veech, Annie, Louisville, Ky., Woman's Med. Col. of Pa., 1909.
 Watson, Everett E., Roanoke, Va., Univ. College of Medicine, 1912.
 Webb, H. H., Newcastle, Va., University of Maryland, 1912.
 Weatherly, T. B., Gorman, N. C., Univ. College of Medicine, 1902.
 Wilkinson, R. J., Richmond, Va., Medical College of Virginia, 1912.
 Williams, James N., Dry Fork, Va., Univ. College of Medicine, 1912.
 Wolfe, Joseph A. L., Elkton, Va., Univ. College of Medicine, 1912.
 Woodruff, Caldwell, Roanoke, Va., College and Phy. & Surg., Balto., 1911.
 Worrell, T. H., Baltimore, Md., Baltimore Medical College, 1912.
 Young, W. J., Williamsburg, Va., University of Pennsylvania, 1911.

AMERICAN PROCTOLOGIC SOCIETY.

(Continued from last issue.)

Pigmentation of the Rectum and Sigmoid.

By JEROME M. LYNCH, M. D., New York, N. Y.

The paper was based on six cases which came under the observation of Dr. Tuttle and himself. He divided pigmentation into exogenous and endogenous.

- | | | |
|--------------|---|---|
| Endogenous.. | { | Hemochromatosis, Pseudomelanosis, Melanosis. |
| Exogenous.. | { | Pigmentation due to chemicals or Metallic pigmentation. |

He proceeded to discuss the origin of pigment, and considered Pick's theory concerning the origin of melanosis in pigmentation of the large bowel particularly interesting.

It is as follows:

That the connective tissue cells possess an enzyme tyrosinase which converts aromatic bodies into melanin.

After having reviewed the subject of pigmentation, he reached the following conclusions:

That hemochromatosis is of bacterial origin; that the extent of the disease is dependent upon the severity of the infection; that the probable source of infection is the intestinal tract, possibly starting as an intestinal putrefaction; that this intestinal putrefaction lowers the vitality of the tissues, and thereby the cells of the mucous membrane lose their protective properties, consequently bacteria find ready access to the portal circulation. As a result of this, the chromogenic function of the liver is interfered with,

consequently the liver becomes surfeited with pigment, and is not capable of abstracting the iron from the hemoglobin, with the result that an excessive amount of pigment is circulating in the blood. That the cells of the intestine probably have a selective action for these pigments, and as a consequence they are deposited in the tissue. That local hemochromatosis may be due to repeated local hemorrhages, followed by infection, and that as a result of this infection the bacteria cause a hemolysis of the blood, forming pigment which resembles hemosiderin, hemotoiden and hemofucin. That these pigments may, or may not, give a reaction for iron.

So little is known about the structural products of melanin or melanoids that it is difficult to give the origin of those bodies. Undoubtedly there are several distinct melanins, and their origins must also be distinct. The ferruginous melanins should be considered as originating from the blood pigment until further research proves the contrary. Most melanins yield endol, scatol, and pyrol. It has been proved that the enzyme tyrosinase is present in the tissues, and further that this enzyme is capable of converting aromatic bodies into melanin.

That Pick's theory is ingenious and worthy of consideration, we admit; but there are points that are hard to reconcile with our present conception of cellular activity.

It is hard to understand why he should attribute to connective tissue cells a highly specialized function; that this is directly opposed to all our preconceived notions of this cell which heretofore has been supposed to have only one function—that of binding other tissues together, with an enzyme of its own nourishment.

It is a well-known fact that the cells of the mucous membrane have the power of neutralizing poisons and converting them into insoluble compounds. In the case of mercury and lead, they are converted into sulphides, and as a result of this change, blackening of the tissues, somewhat resembling melanin, takes place.

Drs. Tuttle and Lynch believe that the cases reported by the English observers were as stated, and should not have been included in Pick's series. Further, that as a result of the action of sulphate of hydrogen on the iron pigments, an insoluble sulphide of iron is formed, blackening of the tissues takes place. This is a separate and distinct form of pigmentation, and should not be confounded with melanosis.

Intra-Rectal Rupture of Suppurating Sinus from Hip-Joint Disease.

By RALPH W. JACKSON, M. D., Fall River, Mass.

To meet the difficult problems presented by an unusual case involving the rupture, internally, into the rectum, and externally near the anus of a sinus from a tubercular hip, the writer has sought, by radiographic study, research of literature and correspondence with proctologic and orthopedic authorities, information as to frequency, pathology and operative possibilities of such cases, and with the following conclusions:

1. That intra-anal or rectal rupture of a coxitic sinus occurs rarely but not with extreme infrequency.

2. That such opening involves probably considerable mixed infection of the joint beyond what would occur if the opening were external.

3. That likewise tubercular infection of the rectum might arise.

4. That intra-anal opening is quite easily treated and much of the mutual risk of infection removed.

5. That intra-rectal opening is in most cases (unless the sinus approaches from low down) too high to turn aside in any way and give an external discharge, and consequently the risk must continue.

6. That operating for such purpose is likely to create at once a complete rectal fistula where none existed before, because of the surgical difficulties in the way of securing permanent closure of the internal opening.

7. That it is a very rare and most unfortunate occurrence for such an abscess to point both externally and internally; an external incision should be made if sure that internal rupture has not occurred; but avoided, if possible, if it has occurred, because of the fistula thereby created.

8. That, whatever the etiology, such a fistula is a particularly troublesome one, and the wisdom of trying to better it surgically is fairly debatable ground.

Preliminary Report of Two Cases—(a) Keloidal Tuberculoma; (b) Fibromatous Keloid.

By ALOIS B. GRAHAM, A. M., M. D., Indianapolis, Ind.

The writer presented a brief preliminary report of two exceedingly rare rectal cases. Both of the cases are of interest in that they emphasize the following points:

1. A benign neoplasm, involving the peri-anal, peri-rectal and surrounding structures, may be the end-result of an inflammation of these structures.

2. An inflammation of these structures is due, in a large proportion of cases, to extension from an anal or rectal inflammation.

3. A benign neoplasm may produce a marked deformity of the structures which it involves. (The writer showed photographs of his two cases).

4. A careful pathologic study is essential for making a correct diagnosis of the neoplasm.

5. A correct diagnosis of the neoplasm can be made and yet its etiology remains vague.

A history of the cases was given together with a description of the operations performed. The pathological report shows one case to be keloidal tuberculoma, the other fibromatous keloid. The first case insisted upon leaving the hospital and was discharged as improved. The second case, that of fibromatous keloid, is still under the observation of the writer. Hence the preliminary report.

In conclusion, the writer stated his object for reporting these two cases. He is firm in his belief that an anal or rectal inflammation was the origin of the diseased conditions presented by these patients. Both cases, therefore, emphasize the necessity for and the importance of rectal examinations. It matters not how slight the ailment may be, a careful inspection of the anus and rectum should be made. If such a rule were followed by every physician and surgeon, such case reports would not be possible.

Ano-Rectal Disease Due to Venereal Infection.

By JAMES A. McVEIGH, M. D., Detroit, Mich.

Venereal disease is an important factor in the etiology of disease in all parts of the human system. Regional relationship of genital organs to anus and rectum render the latter especially prone to this kind of infection. Venereal disease of anus and rectum either direct, through practice of vicious habits, or indirect, or accidental, through extension of infection to these parts from other sources. Less direct infection of this nature in this than in foreign countries. Gonorrhœa, chancroid and syphilis, the principal venereal factors in ano-rectal disease. Description of symptoms, diagnosis and treatment of these conditions when appearing in disease of the rectum and anus. Report of a case.

Book Notices.

Studies in Cardiac Pathology. By GEORGE W. NORRIS, M. D., Associate in Medicine at the University of Pennsylvania. Large 8vo.; 233 pages with 85 original illustrations. Philadelphia and London: W. B. Saunders Company, 1911. Cloth, \$5.00 net.

This work records in elegant photographic form interesting specimens of cardiac pathology from five of the most important Philadelphia hospitals; and, in order to enhance the value of the exhibit, considerable data bearing on the subject has been added. The author states that no attempt has been made to publish a complete work on the pathology of the heart, the text being a means mainly to elucidate the illustrations, with but little space devoted to microscopic tissue changes. So far as we can see, no important cardiac disease has been omitted from consideration. Not only are the illustrations the perfection of the photographer's art, but the paper, printing, etc., are handsome exhibitions of the publisher's skill.

Editorial.

Registration of Doctors in Virginia.

The new law recently passed by the Legislature demands that every practicing physician in this State shall register, before the twelfth day of March, 1913, in the office of the clerk of the circuit or corporation court of the county or corporation in which he resides, a certificate issued to him by the Medical Examining Board of Virginia, in order to be a legal practitioner.

When the Examining Board was first formed, the law provided only for the registration of the certificates issued to the men who passed the examination of the Board. Those who were exempted from taking the examination, namely, "any person who shall have been assessed with a license tax as a physician or surgeon by any commissioner of revenue in this State at any time prior to the first day of January, 1885," were not issued any form of a certificate by the Board and were not required to register. The consequence has been that we have never had a complete registration in Virginia, and irregulars and quacks—especially if 40 years of age or more—have been able to go on their way rejoicing, as it has been almost impossible to prove that they did not at some time prior to the year 1885 practice somewhere in this State.

The new law corrects this state of affairs by recognizing only the registration of a certificate issued by the Medical Examining Board of Virginia in the office of the clerk of the court; any physician not so registered is presumed to have no such certificate and is therefore an illegal practitioner and is liable to be penalized. Further, the burden of proof is put upon him to show why he has not a certificate; and an affidavit from the clerk that the defendant has or has not registered a certificate is all sufficient for an acquittal or conviction.

The law provides the following penalties: "Any person practicing medicine in this State in violation of the provisions of this act, or otherwise violating the same, shall, upon conviction thereof, be fined not less than fifty dollars nor more than five hundred dollars for each offence, and in addition may be imprisoned in the jail of the county or corporation in which convicted for a term not exceeding six months, and each day of such violation shall constitute a separate offense; and in no case shall the violator be entitled to recover anything for the services rendered. And it shall be the duty of the clerk of the circuit court of the county, or the clerk of the corporation court of the city wherein such conviction is had to report the fact of the same to the Board of Medical Examiners, who shall hereupon annul the license of the person convicted, if said person was a licensed practitioner."

The new law compels the Board to issue three forms of certificates, any one of which when registered in said clerk's office makes the holder thereof a legal practitioner:—

First, the regular form given those who pass the examination of the Board or are granted reciprocity;

Second, a verification certificate to those who were legal and reputable practitioners of medicine in this State prior to 1885; the Board is satisfied with the affidavit, under oath, of any member of the State Society stating that he was a practitioner prior to the year 1885, but those who are not members of said Society will have to furnish proof of their college of graduation and their standing in the State at said date and a copy of an original license issued to them prior to the year 1885, which copy can be obtained from the office of the State Auditor. The above statements also apply to osteopaths save that the year is 1903 instead of 1885.

Third, a verification certificate is issued to anyone who appears before the Judge of the Circuit Court and the Commonwealth's Attorney of the county in which he resides and produces evidence before them that he was a practicing physician in this State prior to the year 1895, and sends the affidavits of said officials to the Secretary of the Board.

It should be emphasized most emphatically right here, that the State Examining Board is a legal body organized by the State, from which it derives all of its powers and its limitations, and is in no sense a clearing-house for any one sect of medicine. It can simply say, "You comply with the law and we will make you a legal practitioner." The Board has not, nor has it ever had, the power to refuse a certificate on purely personal grounds, but the new law states that it may refuse to admit persons to its examinations, or to issue the certificate provided for in this act, or *may revoke* any certificate or verification certificate granted by it or any other medical examining board of this State, in any of the following cases:—

- (a).—A practitioner of medicine who is guilty of any crime or misdemeanor, or who is guilty of any fraud or deceit by which he was admitted to practice; or
- (b).—Is an habitual drunkard or habitually addicted to the use of morphine, opium, cocaine or other drugs having a similar effect; or
- (c).—Who undertakes or engages in any manner or by any ways or means whatsoever, to procure or perform a criminal abortion, as the same is defined by the law of this State.

The Board charges 50 cents for a verification certificate, and this amount—either as a post-office money order or in stamps—should accompany the application to the Secretary-Treasurer, Dr. Herbert Old, Norfolk, Va. Physicians have until March 12, 1913, to register before being penalized. Samuel Johnson has well said that: "The inseparable imperfection annexed to all human governments consisted in not being able to create a sufficient fund of virtue and principle to carry the laws into due and effectual execution. Wisdom might plan, but virtue alone could execute. And where could sufficient virtue be found?"

The medical profession has it in its power to demonstrate to the people of this State that the

laws with reference to themselves shall be carried out effectually, and that the public in the future shall be protected from quacks, irregulars, the uneducated and non-competent, and those *non compos mentis* due to alcohol or drugs, or both.

H. O.

National Association for the Study of Pellagra.

The preliminary programme of the second triennial meeting of this Association, to be held at Columbia, S. C., October 3d and 4th, states that a demonstration of pellagra cases will take place at the close of each day's session. The committees have made every effort to enlist the interest of pellagra specialists all over the world, and all interested, whether laymen or physicians, are invited to attend. The executive committee is composed of Drs. J. W. Babcock, J. A. Hayne, and J. J. Watson, all of Columbia, while Drs. H. W. Rice, C. F. Williams and J. LaB. Ward, likewise of Columbia, form the committee of arrangements. A number of other prominent doctors have been appointed to represent the South Carolina Medical Association in arranging for the Conference.

The Fifteenth International Congress on Hygiene and Demography,

Which meets in Washington, D. C., September 23-28, is now assured of being the most important and largest gathering in the interest of the public health which has ever been held. This is the first time in its half century's history that the congress has been held in the United States, and it will probably not be held in our midst for another generation. Practically all foreign countries interested in health conditions will be represented. The Exhibition on Health to be held in connection with the Congress, from September 16th, to October 4th, promises to be interesting. Dr. John S. Fulton, the Secretary-General, will be pleased to furnish any further information, if addressed at Senate Annex, Washington, D. C.

The American Electro-Therapeutic Association.

Which held its twenty-second annual session at the Jefferson Hotel, Richmond, has decided to meet next year in New York City during September. Dr. F. Howard Humphries of London, England, was elected president for the en-

suing year. The meeting was well attended and the program was particularly interesting.

The American Association for Study and Prevention of Infant Mortality

Will hold its third annual meeting in Cleveland, Ohio, October 2-5, 1912. Chairmen of the different special committees have arranged popular meetings which will be addressed by distinguished specialists from this country and abroad, as well as the regular meetings of the Association proper. The officers of the Association are Drs. Cressy L. Wilbur, Washington, D. C., president; L. Emmett Holt, New York, president-elect; J. H. Gerstenberger, Cleveland, Ohio, secretary, and Austin McLanahan, Baltimore, Md., treasurer.

The Association of Military Surgeons of the United States

Meets in Baltimore, Md., October 1-4, 1912, under the presidency of Surgeon C. P. Wertenbaker, of the Public Health Service, Norfolk, Va. Major Charles Lynch, Washington, D. C., is secretary. Among the handsome entertainments planned for the surgeons is a trip to the Naval Academy, at Annapolis, with a reception at the Governor's Mansion there.

Poliomyelitis Still in Buffalo and Los Angeles.

While there have been a few cases of poliomyelitis in Buffalo, N. Y., since the summer and autumn of 1910, it has only been since the 22d of June this year that the disease has seemed to assume epidemic form. From that latter date to August 24, there have been 154 cases with 19 deaths.

In Los Angeles, Cal., there were 226 cases of poliomyelitis reported from June 8th to August 17th, 43 of which terminated fatally. In both of these cities, whenever a case occurs, those who have come in contact with the patient as well as the patient are rigidly quarantined. The United States Public Health Service is co-operating as far as possible with the State and local authorities in all precautions to control the disease.

A larger number of cases than usual has also been reported in Cleveland, O.

Dr. B. Lawrence Taliaferro,

Formerly of Richmond, Va., has become first assistant resident physician at the Catawba Sanatorium, Virginia's State sanatorium for the treatment of tuberculosis, *vice* Dr. Woolwine, whose resignation became effective the first of September.

Dr. J. W. Colvard,

Of Jefferson, Ashe County, N. C., has recently been commissioned by Governor Kitchin as a member of the Board of Directors of the Western North Carolina State Hospital for Insane, at Morganton.

Dr. Allen W. Freeman,

Assistant State Health Commissioner, Richmond, Va., who was recently operated upon at the Jefferson Hospital, Roanoke, is rapidly recuperating. Stricken with appendicitis while on official business in Roanoke, Dr. Freeman's condition was considered so serious that an immediate operation was deemed imperative.

Increase in Record of Vital Statistics.

It is gratifying to learn from the State Health Commissioner that births and deaths are being well reported from many sections of the State.

He further wishes to remind physicians that the State Board of Health keeps constantly on hand a large supply of antitoxin which doctors who have cases of diphtheria in their practice, can secure promptly from the Richmond office at a minimum cost—less than one-third retail price. Bill for same will be rendered by the manufacturer.

The Norfolk (Va.) Department of Health,

In its July, 1912 report, shows a decrease of 25 deaths for the first seven months of this year, as compared with the same period of time in 1911, notwithstanding the year's increase in population. As the Health Department continues to take the most rigid precautions, it seems but reasonable to suppose that the number will be reduced even more in another year.

Dr. M. Eugene Street,

Of Glendon, N. C., has been placed in temporary charge of the North Carolina State Sanatorium for Tuberculosis, at Montrose, *vice* Dr. J. E. Brooks, resigned.

Dr. George A. Hankins,

Of Williamsburg, Va., has been chosen to temporarily fill the vacancy on the staff of the Eastern State Hospital, caused by the resignation of Dr. J. E. Brumback, until the Board meets to elect his successor.

Dr. Brumback has located in Fairmont, W. Va., for private practice.

The New York Ophthalmic and Aural Institute,

For which plans of an eight story building have been prepared, at an estimated cost of \$200,000, will be the largest hospital in this country devoted exclusively to the treatment of diseases of the eye and ear.

Special Lectures at the New York Post-Graduate Medical School.

It is announced that Professor H. Straus of Berlin, will deliver a series of lectures on Diseases of the Stomach and Kidney at the New York Post-Graduate Medical School, October 12, 14 and 15, and that Professor Carl von Noorden, Physician-in-Chief to the City Hospital, Frankfort, Germany, will lecture on the Pathology and Treatment of Diabetes, Radium Therapy and Arteriosclerosis, October 29-31 inclusive. It is expected that these special lectures will be largely attended.

Dr. R. E. Doolittle

Has been chosen by President Taft to succeed Dr. Harvey Wiley, resigned, as the head of the Bureau of Chemistry, Department of Agriculture, and has assumed the duties of his office.

Richmond Doctors Move.

Dr. W. A. Shepherd has moved his offices to 206 West Grace Street, and Dr. Manfred Call, to 208 West Grace Street.

The United States Civil Service Commission

Announces an examination for trained nurse in the Isthmian Canal and the Indian services on October 16, 1912.

The Medical Council,

Of Philadelphia, despite the loss it has recently suffered in the death of its founder and editor, Dr. John Jay Taylor, will continue unchanged except for the development of policies already decided upon. Dr. Thomas S. Blair,

who has for a number of years been associated with the *Medical Council*, will assume charge of the editorial department.

Obituary Record.**Dr. McCandlish Monroe Moran**

Was found dead in his room at the Neddo Hotel, Norfolk, Va., August 12, it is supposed from heart disease. He was born in Mathews County, Va., September 24, 1873, and received his academic education at William and Mary College, this State. He studied medicine at the University of Maryland, Baltimore, and the University College of Medicine, Richmond, and after graduating from the latter in 1901, located in Norfolk County, Va., and became identified with his State and local medical Societies. A couple of years ago he moved from the State and had only recently returned.

Dr. Andrew J. Hoback,

Prominent as physician and Confederate veteran, died at his residence in Roanoke, Va., August 19, after a long illness, and was buried near his native home in Floyd County, with Masonic honors. He was born January 27, 1832, and studied medicine at the Philadelphia College of Medicine, from which he graduated in 1857. He served as a surgeon throughout the War between the States, after which he resumed practice in Floyd County, where he made his home until a few years ago when he moved to Roanoke. He was a member of the Medical Society of Virginia and several local societies. His widow and five children survive him.

Dr. William C. Shackelford

Died at his home near Stony Point, Va., August 27, from apoplexy, after an illness of about a month. He was born in Albermarle County, Va., seventy-seven years ago, and was educated at the University of Virginia and the University of Pennsylvania, receiving his degree in medicine from the latter institution in 1860. At the beginning of the War between the States, he entered the Confederacy as a private, but was soon promoted to the rank of surgeon, and thus served throughout the war, after which he took up the practice of his profession in his native county. He is survived by his widow and a number of children.

THE Virginia Medical Semi-Monthly.

(FORMERLY VIRGINIA MEDICAL MONTHLY.)

Vol. 17, No. 12.
Whole No. 396.

RICHMOND, VA., SEPTEMBER 27, 1912.

10 Cents a Copy.
\$2.00 a Year.

Original Communications.

SURGICAL DISEASES OF THE KIDNEY WITH REFERENCE TO THEIR DIAGNOSIS.*

By CHAS. R. ROBINS, M. D., Richmond, Va.

Surgical diseases of the kidney are of comparatively common occurrence, are frequently overlooked or mistaken for other conditions, and yet present a more or less definite symptomatology and are capable of very exact diagnosis. It is not intended to make an exhaustive study of this rather broad subject, but to indicate in a rather brief way the determining points.

The diseases to be discussed are as follows:

Hydronephrosis.

Ascending infections of the kidney.

Hæmatogenous infections of the kidney.

Tuberculosis of the kidney.

Stone in the kidney.

Hypernephroma.

Hydronephrosis, in which the kidney pelvis becomes distended as the result of a blocking of the outflow of the urine, presents several types: the intermittent, due usually to a stone blocking the pelvis or ureter, or to a twisting of the ureter in movable kidney, or a kinking of the ureter from an abnormal renal artery; the gradual and progressive form in which the obstruction acts continuously. The first comes on suddenly with violent pain and partial collapse and is followed by an enlargement of the involved kidney, which makes a palpable abdominal tumor in the kidney region. The obstruction is relieved spontaneously, followed by a free discharge of urine and the disappearance of the tumor and pain. The second form comes on gradually, and the most characteristic point is the development of an abdominal tumor originating in the kidney space and pushing downward as it enlarges. In this connection, it may be well to state that a series

of experiments recently reported by Frank, of Cincinnati, has demonstrated that a sudden and complete closure of the ureter, as, for instance, ligation of the ureter, is followed by atrophy of the affected kidney with only a very transient hydronephrosis, and that it is by no means a fatal condition.

Ascending infections manifest themselves as pyelitis, pyelonephritis and pyonephrosis. An ascending infection may be due to stricture of the urethra, enlarged prostate, vesical stone or tumors, ureteral stone or stricture, or pressure on the ureter from pregnancy or tumor. The infection is usually due to the gonococcus or colon bacillus and extends upward from a previous cystitis. It is often very severe in onset, accompanied by chills, high fever, delirium, uræmia and coma. It is not infrequently fatal, running a rapid course. In the milder types the disease is confined to the pelvis. The pyelitis of pregnancy belongs usually to this type. Pyelitis may also result from the presence of stone.

In pyonephrosis the obstruction of the ureter is usually caused by inflammatory thickening, so that the kidney becomes a pus sac. The alteration in the urine and pus causes deposits of phosphates mixed with pus which may fill up the pelvis and calices with sand, or may form the branching calculi extending from the pelvis into the calices.

Hæmatogenous infections may be conveyed to the kidney from any infective process in the body, and not infrequently have their source in furunculosis. The symptoms are usually those of a violent intra-abdominal lesion, and consist of violent pain, nausea and vomiting and high fever. Such a condition is liable to be mistaken for some of the more common intra-abdominal lesions.

Tuberculosis of the kidney is most frequently a primary lesion. It is marked particularly by the insidious nature of the onset and the fact

*Read before the South Piedmont Medical Society, at South Boston, Va., May, 1912.

that the symptoms are referred almost entirely to the bladder.

Stone in the kidney is due to a deposit of urinary salts in the pelvis of the kidney. The symptoms arising from it are principally the attacks of pain, called kidney colic, and those due to infection of the kidney, which frequently follows the continued presence of stone.

Hypernephroma is a peculiar malignant tumor of the kidney of congenital origin which may lie dormant for years with mild symptoms extending over a long period of time, but which eventually assumes a most malignant nature with marked tendency to metastasis. The principal early symptom is hæmorrhage from the kidney.

The principal symptoms arising from these various diseases may be embraced under the following heads:

Tumor.

Pain.

Tenderness.

Urinary findings.

Constitutional disturbances.

Considering these in order we will take up first—tumor. In hydronephrosis this is one of the most prominent and striking findings. In the intermittent type it comes on following a violent attack of pain with physical depression, as a rule does not reach a very large size, although in favorable subjects it can be easily palpated, and quickly disappears when the obstruction is relieved. In the continuous form the tumor often reaches enormous proportions and may fill up a large part of the abdomen. In pyelitis and pyelo-nephritis there is no tumor. In pyonephrosis there is an enlargement of the kidney, but owing to adhesions from inflammation the kidney is held up under the ribs and palpation is sometimes difficult for that reason.

In hæmatogenous infections the kidney is slightly enlarged and can be felt in favorable cases. The same is true of tubercular kidney. In stone the kidney is, as a rule, not altered. In hypernephroma the tumor is often quite small at first and any appreciable alteration of the kidney is difficult to make out. Later the tumor becomes easily palpable.

Pain is very marked in intermittent hydronephrosis, and it often causes nausea and collapse. In the continuous form, it is present at the commencement, but is, as a rule, absent later except for the pain caused from pressure.

In pyelitis and pyelo-nephritis, pain is present, but is not severe, and is felt in the kidney region and along the course of the ureter.

In pyonephrosis the pain is of a dull, aching character felt in the kidney region.

In hæmatogenous infections the pain is of a most acute character and simulates acute abdominal conditions, being attended by nausea and vomiting.

In tuberculosis of the kidney, pain is either not present or very slight.

In stone in the kidney, pain is the most characteristic symptom and is described as kidney colic. The pain originates in the kidney region, extends along the ureter, and is attended by referred pain and reflex disturbances, as retraction of the testicle and frequent desire to urinate.

In hypernephroma, pain is, as a rule, slight except when there is the passage of clot, which gives the symptoms of kidney colic. In all cases subject to sudden increase of tension or passage of clot or detritus, kidney colic may be produced.

Tenderness of the kidney region, particularly in the acute vertebral angle, is frequent in almost all of the conditions enumerated, but is most marked in the inflammatory diseases.

Urinary symptoms, consisting of frequent urination, etc., are present in the inflammatory diseases, but are most characteristic of tuberculosis of the kidney. In this disease the symptoms simulate so closely those of a cystitis that it is often treated as such for a prolonged period. In fact, any case presenting bladder symptoms that is resistant to ordinary treatment should be suspected of tuberculosis of the kidney and the proper examination made to determine.

In stone in the kidney, frequent urination is a fairly constant symptom during an attack of kidney colic.

In hydronephrosis the passage of a larger amount of urine, accompanied by subsidence of the tumor and pain, is quite characteristic. The urinary findings, consisting of blood and pus, are of the utmost importance. In hydronephrosis neither are found.

In ascending infections, pyuria may always be demonstrated, but is often intermittent.

In hæmatogenous infections, while pus is usually present, it may be absent, particularly in the commencement of the attack.

In tuberculosis, blood is always present and varies from blood that can be detected only by the microscope to renal hæmorrhages. Pus is also present, and may be either slight or in sufficient amount to make the urine cloudy. The most important finding is the tubercle bacillus, and with the proper technic its presence can usually be demonstrated, but a negative finding is by no means conclusive.

In stone in the kidney, the most characteristic finding is blood. While there may be sufficient at times and following an attack of kidney colic to discolor the urine, it is usually always present in microscopic quantity. Pus is usually present in small amount, but pyuria may develop should the kidney become infected.

In hypernephroma, blood is always present in sufficient quantity to discolor the urine with frequent attacks of renal hæmorrhage. The cases usually present a history of renal hæmorrhage extending over a long period of time before other symptoms develop.

Constitutional disturbances are quite marked in many of these diseases. In hydronephrosis they are absent. In pyelitis, fever is always present in the acute form and often is quite high. The fever may be the most marked symptom, and in cases presenting an irregular temperature without other known cause this condition should be considered. In pyelo-nephritis the temperature, delirium and coma are pronounced. In pyonephrosis the patient presents symptoms of chronic sepsis.

In hæmatogenous infection high temperature, vomiting and severe abdominal pain are marked.

In tuberculosis of the kidney the general health is not, as a rule, at first affected, but later anæmia, loss of weight and general debility become marked.

In stone in the kidney the general health, as a rule, is not affected except as an effect of attacks of pain.

In hypernephroma the patient develops a cachexia comparatively early.

For purposes of diagnosis the cystoscope, ureteral catheter and the X-ray are invaluable.

The cystoscope shows the condition of the bladder and the ureteral orifices, and the catheter enables us to demonstrate the patulousness of the ureters and to secure specimens of urine from each kidney separately, thus show-

ing which kidney is affected and also to determine the function of each kidney.

Stone in the kidney may sometimes be demonstrated with the wax tip catheter. The X-ray demonstrates very accurately the presence of stone. Pure uric acid stones are, however, not easily shown and sometimes escape. Notwithstanding this, a negative finding can almost invariably be regarded as conclusive. By injecting the pelvis of the kidney with a solution of collargol and then having an X-ray plate, the contour of the pelvis is shown, which is of great value in determining hydronephrosis, size and location of kidney and the presence of tumor.

8 West Grace Street.

THE CAUSES AND TREATMENT OF BRONCHO-PULMONARY HEMORRHAGE OR HEMOPTYSIS.*

By JOHN WALKER, M. D., Lynchburg, Va.

The treatment of broncho-pulmonary hemorrhage is a subject of much interest to the general practitioner, and one about which there is much difference of opinion, judging from the different classes of drugs used by various physicians.

In order to deal intelligently with the subject, it seems to me to be necessary, first, to consider the causes of hemoptysis, and hence it is that I have selected for our consideration its causes and treatment.

Causes.—Hemoptysis may be due to many diseases other than those distinctly of the lung, for example:

1. Hemophilia, scurvy, anemia, purpura hemorrhagica, emphysema, hysteria and certain acute infectious diseases when occurring in malignant form;
2. Vicarious hemoptysis may occur at the menopause, during menstruation or with suspension of the menstruation;
3. Heart disease may cause hemoptysis, especially advanced mitral disease with pulmonary congestion. However, it may not be confined to the stage of hypostatic congestion or failing compensation, but may occur earlier in the disease;
4. Bleeding from the nose, larynx and trachea may cause hemoptysis, and must be excluded by thorough examination of these organs;
5. Aneurisms of the aorta, innominate or pul-

*Read before the Lynchburg Academy of Medicine, July 5, 1912.

- monary arteries, by pressure upon and interference with the circulation in the broncho-pulmonary mucous membrane or by direct rupture into the bronchial tubes;
6. Arterio-sclerosis, in which case there is usually an accompanying bronchitis, most probably of the fibrinous type; an interesting case of which I will report later in this connection.
 7. In apparently healthy persons with no visible lesion, we may have hemoptysis which disappears and leaves no trace of disease; hence, we should be careful in making a diagnosis upon hemorrhage alone.

The second class of cases includes diseases of the broncho-pulmonary organs *per se*, such as gangrene, abscess, and cancer of the lung. In hemorrhagic infarction, croupous pneumonia, and fibrinous bronchitis, the hemorrhage occurs when the bronchial mucosa or fibrinous cast is thrown off. Other causes are pulmonary congestion, whether from direct active congestion due to violent exercise, inhalation of flames, drugs, or other irritating substances.

Finally and more frequently than all other causes combined is pulmonary tuberculosis.

When it occurs early in the disease it is due to congestion or to a sharply confined small tuberculous deposit and is apt to be slight.

When coming on later it is caused by ulceration of an artery or rupture of a small aneurismal sac in the lung and is frequently very copious and fatal by complete inundation of the bronchial tubes and lung causing suffocation or by direct loss of blood.

Treatment.—The treatment naturally divides itself into the care of the patient during the attack and during the interval.

The pathological conditions with which we have to deal are a hyperæmia of the broncho-pulmonary mucous membrane, a perforated artery from ulceration or rupture, or changes in the blood caused by some constitutional disease.

The pressure in the pulmonary artery is considerably less than that in the aortic system. We have as yet but a very imperfect knowledge of the conditions and circumstances which control the lesser or pulmonary circulation. We know, however, that there are certain drugs, which cause a rise of blood pressure, and others which cause a distinct fall of blood pressure. The knowledge of this fact is of great assistance

to us in determining the remedies to be used in the different cases.

There are certain drugs often used for hemoptysis, which I believe not only do no good, but are probably harmful in the majority of instances. Among these latter may be mentioned the local use of cold applications over the lungs, by causing contraction of the cutaneous vessels and increasing the intrathoracic pressure; large doses of tannic acid and lead, as they are apt to cause nausea and vomiting and are of doubtful utility, even if they are retained; alcoholic stimulants by increasing the heart action.

Digitalis is contra-indicated on account of its stimulating effect upon the heart in all cases except those of hemoptysis due to the hypostatic congestion of failing compensation in heart disease. In such cases it is a very valuable remedy and will often relieve the condition promptly when given in full doses.

Ergot, which has been in very general use, causes a distinct rise in the pulmonary blood pressure, according to "Bradford's experiments," and is probably productive of more harm than good.

The remedies which seem to me best calculated to control the hemorrhage while in progress are the following:

Absolute rest and freedom from excitement should first be enjoined upon the patient. He should not only be kept in bed, but should not be permitted to turn without assistance and should not be allowed to talk above a whisper. Cold drinks and light diet should be given.

Hypodermic injection of morphine and atropine is probably of more value than anything else we can do in the majority of cases, but must be used carefully in large hemorrhages, as it causes the retention of blood in the lungs and bronchial tubes, thereby interfering with respiration. Opiates may be continued for a time to allay cough.

Ligatures should be applied to the extremities to retain the blood in them, and lessen the amount in the lung.

When they are removed after the hemorrhage is under control they should be removed slowly and only one at the time, having some interval between the removal of each.

Amyl nitrite by inhalation, or nitroglycerine hypodermically to lessen arterial pressure is often of great service and acts quickly.

Aconite or veratrum viride may be used at

the time of the hemorrhage to control the heart's action and lower the blood pressure. An ice-bag may be applied over the heart when its action is strong and full. Venesection may be resorted to in very strong and vigorous subjects.

Calcium chloride is of value to increase the coagulability of the blood with clot formation. Saline purgation may also be used to unload the congested internal organs and to reduce the blood pressure. In cases that are enfeebled and weakened by long protracted illness, or those which are depressed by loss of large quantities of blood, all depleting and depressing agents must be used with the greatest care, or probably omitted entirely. Such cases, however, are but rarely benefited by any treatment and usually terminate fatally in a few hours or a day or two.

In cases arising from other diseases the treatment applicable to such diseases should of course be resorted to in connection with the remedies which have been suggested for hemorrhage. Gangrene and cancer of the lung have practically no treatment, or only such remedies as make the patient most comfortable for his few remaining days.

In the interval, the treatment consists of the use of such remedies as those which build up the patient's general condition—tonics, open air, etc. A diligent search for, and, if possible, removal of the cause of the hemorrhage should be made.

The hemorrhage which occurs in arteriosclerosis is usually accompanied by bronchitis of the fibrinous type and should be treated by such remedies as those which lower the general blood pressure; as salts, aconite, veratrum viride, the nitrites, the iodides and appropriate diet.

The blood pressure should be taken from time to time and an effort made to keep it within the normal range.

The case to which I referred above is that of a woman about sixty-eight years of age who commenced having hemorrhages from the bronchial tubes about three and a half years ago, and continued to have them for about two and a half years. The interim ranged from one week to two months. Her individual history of previous sickness was practically negative. The family history, however, was very suggestive, for two sisters had died of paralysis and one of heart disease, the latter at the time of her death having a large fibroid tumor of the uterus.

Our case presented the physical signs of chronic bronchitis, though apparently confined more to the smaller tubes; the cough often became troublesome and at times paroxysmal. With the occurrence of hemorrhage, there was expectoration of lumps or rounded masses, which looked like portions of mucous membrane. When put into a glass of water, these masses would unfold and then could readily be seen to be true molds or casts of the small bronchial tubes, a specimen of which I will show you.

The patient is fat, well nourished, and has a good color, and in spite of the frequent and, at times, copious hemorrhages, she recuperates rapidly from each. I have frequently examined her sputum for T. B., always with negative results.

One very interesting feature in this case is the accompanying marked arteriosclerosis with high blood pressure, which is frequently over 220 mm., and is very difficult to keep down to anything like a normal condition. She fell into my hands after she had been having hemorrhages for about six months, and has been under treatment ever since. She continued to have hemorrhages for two and a half years, but has not had one now for the past twelve months. The treatment which was used in this case is that which has been recommended above.

URIC ACID AS AN ETIOLOGICAL FACTOR IN ALVEOLAR PYORRHEA.*

By J. C. WALTON, M. D., Richmond Va.

Some time ago I was requested to address the Richmond City Dental Society on the relationship of uric acid to alveolar pyorrhea, or Riggs's disease. In that paper I steered clear of all fads and theories, limiting my remarks solely to the clinical manifestations of this disease and recording the results of my experience in the treatment of this most intractable condition.

Permit me to say that I have no pet theory to exploit, but desire to present for your consideration the actual conditions as I have observed them.

Alveolar pyorrhea is doubtless due to many and diverse causes, the uric acid diathesis, infection probably from the yeast fungus, anemia, disorders of metabolism, malassimilation, etc.

The uric acid theory has been worked to death, and, like the liver, is the scapegoat and is

*Read before the Virginia State Dental Society.

often used as a cloak to conceal our laziness—and I might say, our ignorance also. There can never be any real progress unless we approach these problems with an open and unbiased mind, for, after all, we are co-workers in our earnest efforts to discover the truth, the whole truth, and nothing but the truth.

It is, therefore, a matter of deep regret that so many self-constituted authorities attempt the solutions of these problems without the honest and painstaking investigations that should entitle them to be heard. Send a specimen of urine to any clinical laboratory for a complete examination and receive never a word in the report in regard to the uric acid findings. Should you have the temerity to ask for them, the gratuitous information will be forthcoming that this is entirely unnecessary, as uric acid has no clinical significance whatever.

Dr. Haig was one of the few investigators who took the time and labor to verify by laboratory work his clinical conclusions regarding the significance of the uric acid findings. Yet most of our authorities dismiss the subject with a shrug of the shoulders and the remark that Haig was a uric acid crank. While I do not pose as a Haig champion, as all pioneers are more or less extremists, and some of their conclusions must be taken "*cum grano salis*," simple justice forces the admission from his bitterest detractors that Haig's researches on the relationship of diet and its influence on uric acid excretion has started us thinking along right lines.

I esteem it a privilege, as well as an honor, to respond to your kind invitation to address this distinguished Association of representative men on one of the many clinical manifestations of that hydra-headed monster, *uric acid*; and especially as to uric acid being a contributing etiological factor in alveolar pyorrhea, which I am informed is the "*bête noir*" of the dental profession. I shall confine my remarks mainly to the clinical aspects of the subject, as time will allow only a very brief allusion to the innumerable and diverse theories regarding the genesis of uric acid and its effects on metabolism, and, *vice versa*, the effect of metabolism on uric acid, according to the pet theory of each individual writer. And, furthermore, I assume that one well-established clinical fact is worth a thousand theories; that results, not theories, is our goal, and the relief and cure of our patients is

the paramount end that transcends in importance all other fads and fancies.

Uric acid was discovered in 1776 by Karl Schreele, and in the same year T. Bergenman found it in a stone in the bladder. Barker's little book, "The Truth and Poetry Concerning Uric Acid," gives a most interesting review of the history of the subject and we take the liberty of freely quoting therefrom: "The relationship of uric acid to urea naturally suggested similar origin for these two substances, and the earliest theories took it for granted that uric acid, like urea, is a product of proteid metabolism; since uric acid yields urea as one of its oxidation products, two hypotheses seemed possible—either all proteid or oxidation to urea passes at some time or other through a uric acid stage, or proteid is normally oxidized directly to urea, but under certain pathological conditions, to uric acid instead. In case either hypothesis were true, a fault of oxidation would account for the increased amount of uric acid. This view is not now generally accepted, and the latest theory is that uric acid is derived from nuclein, and that the xanthin bases are related to uric acid, *i. e.*, xanthin, adenin and guanin, which can be obtained from nuclein."

Spitzer, in 1903, after feeding nuclein to rabbits and man, found an increase of uric acid from nuclein, which demonstrates that foods rich in nuclein or in xanthin bases exercise a powerful effect on the excretion of uric acid. It was now clear that uric acid excretion could be derived from at least two sources—first, from the nucleins of the cells of the body itself, and, second, from the nuclein and xanthin bases of the ingested foods. From this time on it became customary to speak of the purin bodies (xanthin bases plus uric acid) in the urine rather than simply the excretion of uric acid.

Certain animals, birds and reptiles excrete most of their nitrogen not as urea, as in mammals, but as uric acid. In these animals the amount of uric acid excreted varies with the amount of food ingested. It sinks in inanition, it is increased in all conditions which augment proteid metabolism, and substances which are fed to mammals and oxidized to urea are excreted in birds as uric acid. All these facts show that in birds and reptiles synthesis plays an important part in uric acid formation.

Croftan, in 1905, found that the various or-

gans destroy uric acid and, indeed, that some of the organs that build it also decompose it.

In carnivorous and omnivorous animals it would appear as though the liver is actively destructive of uric acid, while in herbivorous animals the synthetic production of uric acid would seem to predominate over the destroying power of the organ.

Croftan's studies of human tissues indicate that bulk for bulk the human kidneys destroy more uric acid than the liver, the liver more than the muscles, and the muscles more than the spleen and the blood. Comparing the relative bulk of these organs as compared with the bulk of the whole body, he finds that the muscles destroy most uric acid, next the kidneys, then the liver, the spleen and the blood.

Pure uric acid is a light white powder and consists microscopically of rhombic tablets; it dissolves sparingly in water and is insoluble in alcohol and in ether. Solubility in water is 1 in 39,480 at 18 degrees C. It is to be regretted that our knowledge of the pathological significance of uric acid is not more definite and that in the uric acid diathesis we are unable to decide whether the condition is one of the solubility of uric acid and the urates, or one with real disturbances in uric acid formation and destruction.

Our distinguished townsman, Dr. M. D. Hoge, Jr., in his "Diagnostic Urinalysis," the best manual on this subject extant, says of uric acid and of its clinical significance: "Uric acid is a constant constituent of the urine of carnivora. It is sparingly soluble in water, but is insoluble in alcohol and ether. Uric acid is dibasic; hence it may combine with sodium, calcium and ammonium, to form the acid urates; or it may combine with potassium, calcium and lithium to form the neutral salts. Uric acid is formed chiefly in the liver. The average quantity excreted in 24 hours is about 7 to 10 grains. The proportion of urea to uric acid is about 45 to 1. Uric acid is only deposited in acid urine.

"A deposit of uric acid occurring after twelve hours has no pathological significance. If it deposits immediately, or as soon as the urine cools, it shows that the same thing may occur in the renal tract, and give rise to gravel or stone. In fact, any deposit, except mucus, taking place within twelve hours shows that something is wrong."

As a sediment, uric acid is almost always of a yellowish or brownish color. This is important, as all other sediments are colorless; hence cannot be uric acid or urates. A rough estimate of uric acid may be made by multiplying the last two figures of the specific gravity by two. This gives the quantity in centigrams per litre.

A very reliable and simple test for the estimation of uric acid excess in the urine was taught me while a student in the N. Y. Post Graduate Medical School and Hospital. Take 10 c.c. of urine and add 10 to 15 drops of a 4 per cent. solution of acetic acid and boil. After standing for 24 hours, the uric acid excess will be thrown down as a reddish brown precipitate. This precipitate represents accurately the amount of uric acid excess contained in the urine. Garrod's test for uric acid in the blood: to a little blood collected in a watch glass is added some dilute acetic acid; a linen thread is immersed in the mixture and the whole allowed to stand for 24 hours, evaporation being prevented. If the uric acid in the blood is increased, crystals of uric acid separate out, adhere to the thread and can be recognized under the microscope.

In a very interesting and able article on "Alveolar Pyorrhea" in *The British Medical Journal* by your distinguished fellow, Dr. Edward Eggleston, who is well qualified from his large experience to speak authoritatively on this subject, the doctor regards alveolar pyorrhea as being always due to constitutional causes, such as disorders of metabolism and functional disturbances of the liver, kidneys, heart or lungs, with about one-tenth of the cases due to uric acid excess.

Dr. Eggleston well says that the best results are to be had by a thorough co-operation of the general practitioner with the dental specialist. In this connection it is greatly to be desired that dentistry be elevated so as to place the operator on a plane of perfect equality with the general practitioner of medicine and surgery. I heartily endorse the above. The writer has long regarded dentistry as one of the most important of the branches of medicine and surgery and on an equal plane with the other local specialties, viz., the eye, throat, stomach, rectum, genito-urinary diseases and orthopedic surgery.

A trite old adage says, "No foot, no horse." Of the individual it may as truthfully be said, "No teeth, no digestion," for mastication is the

first and the most important of all the digestive functions. Poor mastication means poor digestion and all its attendant ills, such as malassimilation, malnutrition, and thus renders the organism susceptible to almost every ill that flesh is heir to.

For more than a decade I have had unusual opportunities for studying lithemic conditions, or the uric acid diathesis, wherein the blood contains an excess of uric acid and its salts, and the urine is loaded with nitrogenous waste. In most of these cases a careful clinical and laboratory study of each individual was made and a uric acid excess was found. Under the influence of eliminants this uric acid excess would be temporarily increased, as shown by daily analysis for the first week or so, and not infrequently all the symptoms would become aggravated so much that it would frequently be difficult to get the patient to persist with the treatment; however, at the expiration of this period the output of uric acid would decrease and the various symptoms begin to clear up and the patient be gradually restored to health.

So uniformly has this been my experience and the relationship between cause and effect so apparent, that I am strongly inclined to accept the uric acid hypothesis, especially so since the treatment for lithemia overcomes the pathological conditions and gives relief after the failure of the usual orthodox remedies. Therefore, it is immaterial from the therapeutic view-point whether the uric acid is a cause or effect, or is merely a coincidence, the cold facts in hundreds of instances having shown that a judicious combination of eliminant and dietetic measures is the only procedure so far known that offers hope and relief to this large class of invalids.

Since engaging in special work, I have been surprised to find such a large proportion of invalids suffering from lithemic conditions, viz., rheumatism, neuritis and kidney diseases.

Most of the cases of alveolar pyorrhea referred to me for treatment were lithemic, and, under general eliminant and dietetic measures, with applications of the high frequency currents and the co-operation of the dental surgeon, responded promptly with the most gratifying results. Dietetic treatment is very important and too much stress cannot be laid on the avoidance of uric acid-producing foods, especially the nucleoproteids, and the xanthin bases. Avoid teas,

coffees, chocolates, cocoas, beef, pork, veal and lamb chops, sweetbreads, liver and kidneys, tomatoes, rhubarb, grape fruit, with peas and beans only in small quantities. Do not forget that the flesh of young animals is richer in nuclein than the flesh of older animals, and should therefore be avoided. The patient may take poultry, fish, oysters, milk, butter, mutton chops, fruits and vegetables.

The free use of water internally is indicated as a resolvent for flushing out the different emunctories and for its depurative effects on the tissues. I usually advise about 16 glasses a day of some good soft water, preferably a water containing a considerable amount of carbonic acid with a small amount of sodium and potassium. I place very little reliance on lithia as a uric acid solvent, as it is well known that there is only an infinitesimal amount of lithia in any mineral water and that their virtues are probably due to radio-active properties.

Baths, or the external applications of water to the surface of the body are by far the quickest, safest, sanest, as well as the most pleasing and satisfactory method of eliminating uric acid and all other effete material from the organism.

To obtain the best results it is necessary to produce free perspiration or sweating, and one of the best indices to improvement is the quickened response of the sweat glands to the hot air cabinets.

The skin being a vicarious organ to the kidneys, it can be made to do part of the work of the kidneys and thus save these overworked organs from the irritating effects of uric acid and other poisons.

The cabinet, or Baruch system of baths, is an ideal method of inducing elimination, and it is probably the only system that combines both tonic and eliminating effects without depressing or weakening the patient.

Dumesnil, in a recent publication, has reported a large number of cases of alveolar pyorrhea of specific origin, not that this is causative except in lowering vitality and lessening elimination; and hydrotherapy is especially indicated in those conditions where iodides and mercury have to be given continually and for long periods of time.

These *remarkable high frequency currents*, which are of quite *recent development*, have created as great a sensation in the medical world

as they have commercially in the application of wireless telegraphy and the telephone. These currents, profoundly affecting, as they do, the chemical processes of the body, increase tissue combustion and oxidation and facilitate the elimination of waste products. Nitrogenous debris, which would otherwise form uric acid, is converted into urea and the peripheral circulation is increased through vaso-motor stimulation and regulation. Its antiseptic and vitalizing influence on the tissues makes it especially valuable in the treatment of alveolar pyorrhea, as it meets the indications after the dental surgeon has removed all foreign deposits and put the teeth and gums in a good surgical condition.

Summary.—No physical examination can be complete without an examination of the teeth and gums, and, if they are in poor condition, the patient should be peremptorily referred to a good dentist, not to the advertising dentist who will without compunction spoil several sound teeth to place a costly bridge with the sacrifice in the mechanical power of the jaw of over sixty per cent.

Beginning the treatment, therefore, with the aid and the co-operation of a good dentist, it is started by applying the X-ray for about two minutes, the lips being left open and the teeth and gums exposed to the ray. This is followed by the high frequency current applied with the vacuum electrodes placed in direct contact with the gums, using an insulated handle so that the lips receive none of the current. The electrodes are in different shapes for application to the lingual or buccal surface of the gums and the current is applied for thirty seconds and then changed to some other part. This combined treatment is used three times a week, and iodine petrogen, 10 per cent., is frequently applied on the electrodes (cataphoresis). The applications are painless and there is decided improvement and relief, and in three or four weeks the discharge has diminished, the tenderness disappears, the teeth tighten and there is a marked improvement in the general health.

Tousey, in "Medical Electricity," says that the cases with the most brilliant results are those with ragged looking ulceration of the gums. Those which appear to be susceptible of only a moderate amount of benefit are those with a clean gingival border, but with a pale cartilaginous appearance, looking as if the gums

would not bleed if cut with the knife. These cases are often dependent on anemia and the indication is for fresh air, tonics and exercise rather than for local applications. It appears probable that many of these cases can be permanently cured and the teeth saved with this treatment combined with proper care by the dentist.

REFERENCES.

Barker, "The Truth and Poetry Concerning Uric Acid."

Hoge, "Diagnostic Urinalysis."

Tousey, "Medical Electricity."

New York Medical Journal.

VENESECTION IN POST-PARTAL ECLAMPSIA—REPORT OF A CASE.*

By JOHN F. MORAN, M. D., Washington, D. C.

Mrs. P., age 23; primipara. Last menstruation, February 17, 1911. Labor reckoned for November 24, 1911. Case came under the care of Dr. Prentiss Willson in September, who made frequent urinalyses and noted the presence of albumin for the first time November 17th. He requested a twenty-four hour specimen of urine, which was not obtained until the 19th. This showed marked trace of albumin. Milk diet and eliminative treatment ordered.

November 20, the excretion of urea was 16 grammes and on the following day the urea output was 10 grammes. Blood pressure over 180, but the apparatus was defective so that the exact pressure was not registered. Labor began at midnight and ended at 1:20 P. M. the 22d. Perfectly normal. L. O. A. *Loss of blood very scant.* Only one vaginal examination and that was made when the head was on the pelvic floor. Cord around the neck twice and was severed before delivery. First degree laceration closed without anæsthetic. No anæsthesia during labor.

7:30 P. M. Patient complains of severe headache; pulse very full. Blood pressure not taken. Nitroglycerin, 1/100 grain, ordered every four hours. Had voided urine since birth of child, but the amount was not measured. At 8:30 P. M. had a convulsion. Unconsciousness lasted but a short time. Hot pack given and patient perspired freely. Voided urine several times during the night. Nitroglycerin continued and Epsom salts administered. Bowels moved twice.

Perspired freely all day of the 23d and voided 21 ounces of urine at 1:20 P. M. and 20 ounces at 5 P. M. In the afternoon was drowsy, rest-

*Read at a meeting of the Medical and Surgical Society of the District of Columbia, March 7, 1912.

less and complained of headache. Mind clear. Lochia free. At 7:15, twenty-three hours after the first convulsion, the second seizure occurred and others followed at intervals of five to ten minutes. I was summoned by Dr. Willson and reached the bedside when the patient was having the third convulsion. The pulse was 80 and coma profound.

Venesection was at once agreed upon and performed by Dr. Willson. Twenty ounces of blood was taken from the median basilic vein. The convulsions, ten in number, continued throughout the blood-letting. Coma was profound and edema of the lungs marked. Pulse 144 and blood pressure 120 one-half hour after venesection. Patient placed in hot pack at onset of convulsions and two hypodermics of morphia, grain 1-4, administered after an interval of two hours. Salt solution by rectum by slow method was begun at midnight and two quarts were given; most of it was retained. About eleven o'clock the pulse was observed to be decreasing in frequency and the edema of the lungs lessening.

At 7:15 o'clock the following morning, November 24th, the pulse was 93 and respiration 16. At 9:15 A. M. 22 ounces of urine were removed by catheter and gave a marked precipitate of albumin. The next catheterization at 4:10 P. M., 36 ounces were removed and showed only a very *faint trace of albumin*. The coma and morphine narcosis gradually lifted in the afternoon and by evening the mind was quite clear.

The puerperium was complicated by sapremia, which yielded to a single intrauterine irrigation of normal salt solution. Convalescence was otherwise uninterrupted, and Dr. Willson reports that urinalysis made February 1, 1912, showed the urine to be normal, and the patient in excellent condition and nurses the child, which is also thriving nicely.

The points worthy of note in this case are as follows:

1. Absence of the usual manifestations of impending eclampsia save the presence of albumin and the increased blood pressure emphasizes the importance of a routine examination for these danger signals in every case of pregnancy.

2. The small amount of blood loss during delivery was also of significance, particularly when associated with the other signs.

3. The marked secretion of urine and the lateness of the onset of the convulsions after deliv-

ery would seem to indicate that nature was endeavoring to throw off the toxins, and had there been free bleeding before or during labor the eclampsia might have been averted.

The mere report of the clinical phenomena of this case gives but a faint idea of its gravity. When I saw the patient in the throes of the convulsion with a pulse of only 80 I felt very hopeful of the outcome, but the recurring convulsions, deepening coma, rapidly quickening pulse and the supervening edema of the lungs quickly changed my view and made the favorable prognosis doubtful. I am firmly convinced that saving the patient's life was largely, if not solely, due to the prompt blood-letting.

2426 Pennsylvania Avenue, N. W.

GLANDERS.*

By JAMES AUGUSTUS FLYNN, M. D., Washington, D.C.

Glanders is a contagious constitutional disease, prevalent chiefly in the horse, but readily communicable to man, the dog, the cat, the rabbit, and the guinea pig. It is transmitted with difficulty to sheep and goats, and cattle seem to be entirely immune. It runs a variable course, and generally produces death of the affected animal.

Glanders is characterized by the formation of neoplasms or nodules of connective tissue, which degenerate into ulcers, and which exude a peculiar discharge. Fever of variable degree accompanies the disease, as also pains of joints and muscles. Various complications of lymphatics, of lungs, of testicles, of internal organs, and the subcutaneous connective tissue occur during the course of the disease, which is accompanied with great prostration.

History.—Glanders is one of the oldest diseases recorded in the history of medicine. Absyrtus, the Greek veterinarian in the army of Constantine the Great, described the disease and recognized the virulence of its character. Vegetius Renatus, another Greek in the time of Theodosius (381 A. D.), described it under the name of malleus humidus, a disease of the horse characterized by nasal discharge and superficial ulcers. He recognized the contagiousness of the discharge from the superficial ulcers, and recommended that all animals sick with the disease be separated at once from other animals, and that sick animals should be pastured in separate fields.

*Read at a meeting of the Georgetown Society.

In 1682, Sollysel, stable master to Louis XIV, published an account of glanders and farey, which he considered closely related, but did not recognize them as one and the same disease.

Garsault, in 1746, stated that the disease was very infectious, and in a short time could be communicated to a prodigious number of horses by means of feeding troughs and contact. He recommended the destruction of animals so diseased.

Bourgelat, the founder of veterinary schools, in 1755 established glanders as a virulent disease. Glanders prevailed in the great armies of Europe and England during the period of all the wars of the last century. It was brought into America at the close of the eighteenth century, and before the end of the first half of the last century had spread to a considerable extent among the horses of the middle and adjoining Southern States.

Etiology.—There is no evidence to suggest that the disease ever originates in man. The micro-organism (*bacillus mallei*) causing the disease was seen and described by several earlier authors, but was first obtained in pure culture and studied by Loeffler and Schutz in 1882.

The *bacillus mallei* is a small rod with rounded ends, length 3 to 4 micra, breadth 0.5 to 0.75 micron. There is a characteristic variation in size of the organism in the same culture. The rods are usually straight, non-motile, and have no flagella and are non-spore forming. *Bacillus mallei* stains rather easily with the usual anilin dyes, but is so easily decolorized that especial care must be exercised in preparing specimens. With methylene blue it shows a marked irregularity in its staining qualities; granular, deep-stained cross areas alternating with faintly stained or entirely unstained areas. This diagnostically helpful characteristic has been taken for spores and a mark of degeneration, but is probably neither, but an irregularity in protoplasm composition like diphtheria. The *bacillus* is decolorized by Gram's stain.

Bacillus mallei grows easily on all media, and equally well in acid, alkaline or neutral media. Glycerin added seems to favor development. On potato it becomes deep reddish brown when old, not unlike *bacillus pyocyaneus*. It is aerobic, but will grow slowly under anaerobic conditions. *Mallei* grows best at body temperature

(37.5°C.). It will live for years if not exposed to light, sunlight killing it in 24 hours. It will live, however, for long periods in water under protected conditions. It is not very resistant to chemical agents.

In animals we always get the disease when inoculation occurs, but some species, instead of developing it as a constitutional disease, develop only local sores. Stable attendants serve as the most common carrier of the disease.

Diagnosis.—The diagnosis of glanders has been the subject of numerous investigations. By the inoculation of susceptible animals, and with the aid of the biological product of the *bacillus mallei*, called mallein, a large proportion of the latent and obscure cases can be diagnosed. But there are many animals, however, who do not react to mallein, and this led to the application of the agglutination test by McFadyean in 1896. This test is similar to the Widal test for typhoid. These tests, however, did not give positive results, and in 1909, Schultz and Schubert published their results on the application of the method of complement fixation for the diagnosis of glanders. Splendid results followed, and Germany adopted this as the official test in that country.

Pathology.—In human beings the infection takes place generally through small wounds of the skin. It can, however, take place primarily on the mucous membrane where it joins the skin. In the skin and subcutaneous tissue the following lesions may develop: Carbuncular and phlegmonous inflammation, which may result in suppuration, nodular, vesicular, and pustular exanthemata, and suppurative inflammation of the lymphatic vessels and glands, fluidity of blood, softening of muscles with hæmorrhagic abscesses in them.

In the nasal mucous membrane numerous scattered and closely grouped granulation tumors develop on the submucosa. There is a proliferation of leucocytes, forming lymphoid cells, and of connective tissue cells, forming epithelioid cells. These nodules increase and interfere with nutrition, which results in a liquefactive necrosis; thus we have small ulcers or abscesses formed.

Symptoms.—An acute and chronic form is recognized:

Acute Glanders.—Incubation is rarely more than 3 or 4 days. General febrile disturbances

ensue. At the point of infection there are swelling, redness, and lymphangitis. Within 2 or 3 days there is involvement of the nasal mucous membrane, the nodules break down rapidly, with resulting ulcers, and muco-purulent discharge. There is an eruption of papules, which rapidly become pustular in appearance and break out over the face and joints. It has been mistaken for variola. In Montreal, according to Osler, the attending physician suspected small-pox and so isolated the case. There is great swelling of the nose, and the ulceration may go on to necrosis, in which case the discharge is very offensive. The lymph glands of the neck are generally much enlarged. Pneumonia may develop. This form runs a course of 8 to 10 days, and is invariably fatal.

Chronic Glanders.—This is rare and difficult to diagnose, as it is usually mistaken for coryza. There are ulcers of the nose and generally laryngeal symptoms. It may last for months and recovery sometimes takes place. In such a case, cultures should be made and a guinea pig inoculated. If glanders, the animal will die within 36 hours, and the testicles will be found very much swollen and already in condition of abscess.

Diagnosis — Differential.—Because of the rarity of the disease the physician is apt to think of glanders last of all, or entirely overlooks it. In any suspicious case we should get some of the discharge from the ulcers and examine it with methylene blue stain, inoculate a few culture tubes, and inject into a guinea pig. Diligent inquiry into the history of suspected cases should be made.

Prognosis.—In glanders the outlook is extremely grave. In the United States, according to the U. S. Census Bureau, we have had 54 deaths since 1900.

Treatment.—The abscesses should be opened and curetted, then cauterized. Douche nose with creosote, 2 grains to pint of water. Carbolic, 1 to 60, may be used on lint to ulcerated area. Iron, quinine, whiskey, and strychnine in heroic doses for constitutional effect. Iodide of potash has been used. An autogenous vaccine was used in New York during the past year, with a perfect result. Rigid prophylaxis and antiseptics must be insisted upon.

1333 Q Street, N. W.

Proceedings of Societies, Etc.

AMERICAN PROCTOLOGIC SOCIETY.

(Continued from last issue.)

Colonic Dilatation (Congenital and Acquired) As a Factor in Chronic Intestinal Obstruction (Obstipation).

By SAMUEL G. GANT, M. D., New York, N. Y.

The author stated that his experience warrants the belief that both acquired and congenital (Hirschsprung's) dilatation of the colon is fairly common, and that they respond satisfactorily to treatment (usually surgical). He said that non-congenital dilatation of the bowel might result from paresis, gormandizing, digestive disturbances or chronic intestinal obstruction, however caused, and when present leads to constipation, fecal impaction, distention of the bowel, angulation, twisting and ptosis of the colon. He called attention to the fact that this class of patients suffered much less from intestinal auto-intoxication than persons afflicted with acute constipation. In his cases the colon completely filled the abdomen, measured from three to many times its normal size, was considerably thickened, characterized by dilated blood-vessels and closely resembled an enormously hypertrophied stomach, for which it was mistaken in two instances. He mentioned having personally observed seven cases of Hirschsprung's disease and a still greater number of acquired dilatation, wherein the patients had an evacuation every two or three weeks, following purgation and frequent enemata, except in two instances, that of a young boy, who moved his bowels only once in two months, and of a young woman, who succeeded in accomplishing this but four times yearly. He said the chief manifestations of the condition were those of chronic constipation and fecal impaction, plus mal-nutrition, abdominal distention, pot-belly, extraordinary length of time between the movements and very large amount of feces discharged when an evacuation occurred, and that the diagnosis is fairly easy in the presence of the above symptom complex, because, with the aid of inflation and palpation or the assistance of the X-ray, the size and position of the colon can be defined.

The writer maintained that temporary improvement occasionally follows medication and physical measures, which strengthen the bowel

or minimize the effects of auto-intoxication consequent upon fecal retention, and that patients may for weeks or years be kept fairly comfortable when given close attention and the bowel is kept open with lubricating oils, laxatives and frequent high enemata, but that a cure is not possible except through one of the following surgical measures, viz.:

- | | |
|-------------------|--------------------------|
| 1. Coloplication. | 4. Intestinal exclusion. |
| 2. Colopexy. | 5. Colostomy. |
| 3. Resection. | 6. Tapping. |

He found coloplication effective in both congenital and acquired dilatation without bowel displacement. Colopexy proved satisfactory where there was ptosis with moderate dilatation, but in aggravated cases where the bowel was both enormously dilated and markedly ptotic, he advised coloplication and colopexy, using the infolding sutures for suspensory purposes.

He advised resection of all or part of the colon where it was irretrievably large, displaced or bound down by adhesions, and reported a case where the sigmoid flexure, descending colon and left half of the transverse colon were excised.

Exclusion had proven satisfactory, and he reported five cases treated by dividing the ileum near the cecum and completing the exclusion by ileo-sigmoidostomy.

Colostomy was looked upon with ill-favor because patients strenuously object to an artificial anus, and a secondary and dangerous operation is required to re-establish continuity of the intestines.

Tapping, he said, deserved no consideration, because it is unscientific, dangerous and ineffective.

In closing, Dr. Gant said that he frequently combined the above operations with appendicostomy or cecostomy, so that through and through irrigation could be immediately established and the period of convalescence shortened. He also stated that colonic exclusion and colostomy were considerably less dangerous than resection, and were usually effective, since the bowel rapidly contracts after their establishment.

Further Observations on Pruritus Ani: Its Probable Etiologic Factor Based Upon Original Research.

By DWIGHT H. MURRAY, M. D., Syracuse, N. Y.

This paper was a continuation of the work that he has been engaged in for the past two

years and which he presented to the American Proctologic Society at the Los Angeles meeting in 1911.

From his experiences, since discovering that a skin infection is the important factor in pruritus ani, he believes that we are now in a position to state that there may be two varieties of pruritus ani; one that may be coincident with some of the diseases of the rectum and in which the skin infection is not present. He designates this form as pruritus ani simplex; the variety, which is chronic, in its character, and in which the skin infection is present he designates as coccigenous pruritus ani.

He states that he is continually seeing patients who have all varieties of rectal diseases, including chronic diarrhoea and proctitis, in many of which there is a leakage of moisture upon the anal skin. In very few of these cases does he find pruritus ani, and he believes that when it is present it is coincident rather than having been caused by these discharges occurring in various rectal diseases.

He gives a resume of an examination of 900 consecutive cases in which he finds 490 cases of constipation, 369 of hemorrhoids, and 94 of pruritus ani. Of the 94 cases which gave a history of pruritus ani, he finds that 5.5 per cent. of the 900 cases examined who had pruritus ani were constipated, 2.3 per cent. had hemorrhoids, 1.2 per cent. had some form of anal growth, 2.2 per cent. had ulceration, 2.5 per cent. had diseased crypts, 1.3 per cent. had hypertrophied papillae, .03 per cent. had polypi, .03 per cent. had fistulae. He believes that the relatively small percentage of each of these conditions that were present in the pruritus ani cases show that they were coincidental when present and could not be classed as causes of pruritus ani.

Thirty-two of these 94 pruritus cases have been examined bacteriologically by him, and all of them showed streptococcic skin infection as the predominating condition.

He believes that the excess moisture and the infiltrated condition of the skin in these cases is due to the low-grade inflammation caused by skin infection, and is not the result of moisture coming from the inside of the anal canal.

He presented photographs of Petri-plates of a typical case showing the immense numbers of streptococci at the time of the first examination, another photograph of the same case showing

that streptococci were not present in the culture taken from the anal canal, and another photograph of a Petri-plate of the same case after four months' of treatment (one month after itching had ceased), in which last photograph no streptococci were present.

He gives a report of his technic in greater detail than in last year's paper, because he has found that the last year's report was not understood by some physicians who had employed his method.

From some reports received he believes that stock vaccines will not give good results, because they are made of a different branch of the streptococcic family than the one causing pruritus ani.

He gives detailed reports of the cases treated, both of the first and second series, showing very marked improvement in all of the cases and cures, so far as present conditions are concerned, of others.

He presented a series of twelve control cases having a variety of rectal diseases that are usually given in text-books as causes of pruritus ani, none of which had the disease, nor did they show a skin infection.

He said that the conclusions of the first year's work still hold true, and he gave the conclusions of his second year's work as follows:

1st. It is shown by the nine hundred consecutive cases of rectal diseases that constipation and hemorrhoids, or any lesion, are coincidental, or may be predisposing, but not the exciting cause of pruritus ani.

2d. Even when there is a discharge of pus or other moisture on the skin about the anus it is not the actual cause of pruritus ani unless there is a streptococcic or other infection of the skin. They may exist together, but are then only a coincidence.

3d. All investigators, in making cultures, should use, in addition to the hard media, the liquid media and Gordon's series of carbo-hydrates if they wish to differentiate the streptococci and other bacteria.

4th. Avoid excessive reaction.

5th. Use small initial doses.

6th. Give subsequent injections only after the previous reaction has completely subsided.

7th. He suggests the following change in the nomenclature of pruritus ani by recognizing two varieties: Pruritus ani simplex and pruritus ani coccigenous.

The Roentgenologic Method of Examining Cases of Constipation and Obstipation—A Method of Visualization of Abdominal Lesions of the Intestinal Tract.

By ARTHUR F. HOLDING, M. D., New York N. Y.

The author noted that current text-books on diagnosis written by eminent authorities are still copying cuts which were drawn by some artist rather than by an anatomist. Let us hope that the striking proof furnished (by the X-rays) of the fallacy of such teaching will be effective, and perhaps not one of the least results will be to cause true illustrations to be placed before our student's eyes.

The normal position of the colon and the parts of the intestine that can ordinarily be visualized by means of bismuth ingesta and the X-rays are:

(1) The first portion of the duodenum; (2) the jejunum; (3) the ileum; (4) all parts of the colon; in some cases the second and third portions of the duodenum and the appendix can be visualized.

The accuracy, reliability and interpretation of findings by this method, however, may well receive our careful attention.

In the first place, this method does not cause gastro-intestinal symptoms, such as nausea, vomiting, diarrhea, constipation, gastro-intestinal or general symptoms, other than are present when buttermilk alone is ingested; it is therefore logical to assume that the buttermilk-bismuth mixture does not irritate the mucous membrane and gives a true picture of the motor activities of the patient's intestines.

By fluoroscopy and by radiography in the erect or prone positions, or both, an accurate outline of the lumen of the tract can be obtained, especially where there is any obstruction to the onward progress of the intestinal contents. The individual peristaltic waves can be accurately registered on a special photographic emulsion that is far more sensitive than the human retina and the progress of the peristaltic waves can thus be seen functioning under normal conditions, the patient and his abdominal contents not relaxed by a general anesthetic; the secretions and motility not disturbed by the presence of an irritating foreign body such as a stomach tube; the conclusion not based on inference deduced from chemical reactions of juices obtained by abnormal and irritating measures. The organic outline obtained in X-ray plates is even more conclusive and reliable than the informa-

tion obtained by the sense of touch, whether that be applied over the intact abdominal wall or to the viscera laid bare by an exploratory incision. The radiographic emulsion and the retina are the two most sensitive methods of observation possessed by man, far outranking in their acuteness either the drum, membrane or the sense of touch. It has been contended that the abdominal operation was more accurate than an X-ray examination, because it laid bare the "naked truth," the finality of this argument is based more on the sound of the words than in fact, as anyone knows who has had an opportunity to use both methods on the same case.

On the other hand, there is great danger of arriving at wrong conclusions in using the X-ray method, especially when the examination is based on too few plates or is only an examination of a suspected part of the 30 odd feet of intestinal canal.

We must not let seniority interfere with our recognition of the superiority of methods employed by us for diagnosis. No progressive proctologist or surgeon should depend on any one method, but should use them all in examining cases, and in obscure cases he should not hesitate to insist upon supplementing the more common methods of examination with a radiologic examination, regardless of the expense involved.

The various lesions and conditions that have been successfully shown by the X-ray method are—atonic and spastic constipation; congenital anomalies of the tract such as non-rotation of the cecum and narrowing or insufficiency of the ileocecal valve; adhesions; kinks, with or without adhesions (including Lane's); ulcers; tumors within the canal and tumors pressing upon the intestines from without.

It must be borne in mind that a palpable tumor disappearing after the administration of an enema or a cathartic, even if followed by improvement in the patient's condition, is not proof that the tumor was feces.

The Roentgenologic method of clarifying difficult conditions present in patients will no doubt be gladly welcomed and widely utilized by surgeons, who, as a class, deserve our greatest respect and admiration for their courage in attacking many ordinarily undiagnosible conditions by cutting boldly into the abdomen and making their diagnosis by inspection, and thereupon instituting impromptu surgical procedures

in order to correct the conditions found. Many times the condition found within the abdomen is entirely different from that which was expected. When these difficult situations can be accurately known before the operation is begun; when the surgical procedures can be accurately predetermined; when much time (previously lost exploring the abdomen) can be saved; when the duration of the patient's anesthesia can be proportionately shortened; when the surgeon will be saved the tremendous nervous strain and responsibility of emergency decisions and procedures; the surgeon must recognize that his operative statistics will necessarily be better, his patients are going to recover quicker, and more of them, and finally the years of a surgeon's own life and usefulness will be increased.

The only great draw back to the general adoption of this method is its necessarily great expense.

Multiple Adenomata of the Rectum—Report of a Case with Symptomatic Relief by Simple Remedies.

By E. H. TERRELL, M. D., Richmond, Va.

This article was a report of a case of multiple adenomata of the rectum and sigmoid, in a patient 42 years of age, who had been suffering for the past five years. He had frequent stools with mucus, some blood and a great deal of tenesmus. He was having from eight to ten stools daily. He suffered considerable pain throughout the abdomen. Examination showed numerous small tumors scattered through the rectum and sigmoid. Microscopic examination showed these growths to be adenomata. The bowel was intensely inflamed and contained many ulcers. Under irrigation of the bowel with boric acid and the administration by mouth of castor oil and aromatic syrup of rhubarb improvement was almost immediate. In three and a half months, the patient had gained seven and a half pounds, and was comparatively comfortable. The tumors were reduced in size and the ulcers gradually disappeared. While the adenomata are still present the patient is symptomatically cured.

Dr. Terrell emphasized the value of the administration of equal parts of rhubarb and castor oil, and thinks that in simple ulceration of the rectum this treatment alone is almost a specific. He calls attention to many reports of

cases in which adenomata of the rectum are supposed to disappear, and points out that this condition must be merely a hyperplasia with inflammation, and not true tumors, for the latter are permanent. As regards the predisposition of adenomata to become cancerous, he called attention to the fact that these tumors are benign, and are consequently composed of mature tissue, so they can not themselves become immature tissue, which is malignancy. Instead of a malignant degeneration, it is likely that matrices of immature tissue have also been deposited where so many matrices of mature tissue are found, and the growth of the adenomata, with the accompanying inflammation and ulceration, stimulates these immature matrices to develop into cancer, or else immature matrices are formed from the ulcers, just as they develop from ulcers, in cancer of the stomach. The simple treatment which he proposed not only relieves the patient's symptoms, but by lessening the inflammation and curing the ulcers it also decreases the chances for subsequent malignancy.

The Three-Step Operation in Tumors of the Sigmoid and Colon.

By JAMES P. TUTTLE, A. M., M. D., New York, N. Y.

Dr. Tuttle described the operation as follows: Incision is made in the outer border of the left rectus. Tumor is brought out on the abdominal wall. Peritoneal layers of the meso-sigmoid are incised well above and below the tumor, and stripped back so as to expose the blood-vessels, fat, and glands, which may be in the meso-sigmoid; the latter are stripped toward the intestine until the blood vessels are bare and the supply to the bowel is easily visible. The sigmoidal artery is tied in two places and cut between and the proximal stump dropped back into the abdominal cavity. The raw surface in the abdomen is covered over by suturing the two peritoneal layers of the meso-sigmoid together over the arterial stump. The two legs of the sigmoid are sewed together laterally to make a spur, after the method of Bodine. The peritoneum is sewed around the bowel, the muscles drawn together, the skin wound closed, attaching it to the bowel. In forty-eight hours the tumor is excised by a V-shaped incision. Two days later, the spur is cut away by pressure-forceps. After this is completed a long rectal bougie is passed up through the bowel beyond

the artificial anus, in order to press the spur back and obtain a large caliber at the site of the resection. When the wound made by the pressure-forceps is healed, the artificial anus is closed by the extra-peritoneal method of the author.

Analyses, Selections, Etc.

Factors in Malarial Recurrences.

G. E. Henson, Crescent City, Fla., gives his modification of Ross's thick-film method for the investigation of malarial infection as follows, claiming a large saving of time: A large drop of blood is spread over a square inch of the slide, allowed to dry and then immersed in a 5 per cent. solution of acetic acid for from one-half to two minutes, depending upon the thickness of the smear, or long enough to remove the hemoglobin, then washed in .95 per cent. ethyl alcohol for a few seconds, rinsed in distilled water and, without drying, stained. For this purpose he uses Wright's, but in adding water it is necessary that the dilution be greater than is used when working with a thin smear. The entire process is complete in a little over five minutes. Only such ingredients as are chemically pure should be used, including in all instances distilled water; and it is imperative that the acid should be neutralized or the parasites will not take the blue stain. It is also important that the alkali should not be in excess or the film will take an intense stain from the methylene blue, which cannot be sufficiently washed out without also decolorizing the parasites. Of course, in this method, as in all thick-film methods, the relation of the parasite to the corpuscle is lost, making the identification of the parasites more difficult to one not perfectly familiar with the picture.

His conclusions are as follows:

Parthenogenesis cannot be considered a factor in recurrences for the following reasons:

1. The very existence of such a phenomenon is a matter of great doubt, many observers working over a period of years having failed to demonstrate such forms.

2. There are many cases reported that have at no time during the infection shown the sexual forms, but have frequently relapsed.

3. The four cases cited by Ross in which in-

oculation experiments containing only sexual forms failed in each instance to produce clinical symptoms of malaria, or to reveal the presence of any plasmodia, while in fifty-one cases cited by the same author inoculation experiments containing the asexual parasites, in every instance produced clinical symptoms of the infection, and parasites of the type inoculated were demonstrated in all of the cases experimented with since the discovery of the plasmodia.

Intracorpuseular conjugation is not an occasional phenomenon, but is generally present in recurring cases. In persons possessing a relative immunity, which permits the parasites to remain in the blood in small numbers for some time, before original manifestations of the infection, conjugating bodies may appear early in the infection. The observations of Craig that certain forms of the plasmodia exist only when conjugation is present and often before gametes have appeared, would indicate that they are a factor in recurrences of long intervals, and while they have only been followed by him to a pre-sporulating stage and further observations on their morphology are necessary to absolutely associate them with recurrences, there is good reason to believe that such studies will establish them as the etiological factor in long interval relapses.

Asexual reproduction by schizogony is generally accepted as the cause of short interval relapses, but the length of time that the schizont is capable of keeping the infection alive in man without producing clinical symptoms is at present undetermined, and can be only determined by future laboratory observations on an extensive scale.

The acceptance of either or both factors in the etiology is of biological interest, but whichever is the cause of recurrences, the solving of the problem from the standpoint of the sanitarian lies in the early diagnosis of all primary infections, the efficient treatment in both dosage and the length of time the patient is kept under observation and treatment and the proper treatment of all chronic cases in like manner.

Review medical literature for, say the past two years, and you will find it teeming with articles dwelling on the eradication of hookworm, the treatment of pellagra, the use of salvarsan in lues, but little will be found concerning the eradication of our old-time enemy ma-

laria. He would not for a moment detract from the good work done toward the treatment of the diseases mentioned, but he does earnestly plead for the medical profession to awake from this state of lethargy concerning the elimination of a disease so easily eliminated as malaria. He ventures to say that, if the same attention had been given this medical problem and it had received the publicity in the lay press these other diseases have, that the thousands of cases that occur annually in this great Southland of ours would have been materially reduced, the unenviable reputation that certain of our districts are hotbeds of disease would forever be banished, and that not only our malarial morbidity, but that from all other causes would be very much less than under present conditions, and as Harris stated in his address as Chairman of the Section on *Practice of the Southern Medical Association* three years ago, "Prove that yellow fever and malaria are forever stamped from the South, and our prosperity will amaze the world." (*So. Med. Journ.*, Aug., 1912.)

Inclusion Bodies in Scarlet Fever.

The investigations of Professor Doehle regarding certain inclusion bodies found in the polymorphonuclear leukocytes in scarlet fever have received corroboration by Dr. Matthias Nicoll, Jr. From a study of 115 cases of scarlet fever and about 80 controls, Dr. Nicoll found that only 16 cases of scarlet fever failed to show the inclusion bodies.

Among the controls, normal blood was found negative. The blood in measles, German measles, as well as in the antitoxin rashes, was also negative. Positive results were found in the controls coming from cases of sepsis, typhus fever, empyema and erysipelas.

It is exceedingly suggestive that this inclusion body possesses diagnostic value in differentiating scarlet fever from those rashes with which it is most often confused.

It is significant, however, that among the controls, positive reactions were found in the infectious diseases whose etiologic factors are possibly streptococci. Possibly this hints that there is some similarity in the affective agents of these diseases, though the subject of inclusion bodies has not received sufficient investigation to substantiate such an assumption.

The technique of the method is simple and

the time necessary for examination is brief, so that it is to be hoped that investigators will soon make a wide test of the clinical value of this phase of blood examination.—(*Editorial.—Med. Review of Reviews, Sept., 1912.*)

Phosphaturia: Its Significance and Treatment.

Phosphaturia is of importance to the surgeon on account of its relation to the formation of phosphatic concretions in the genito-urinary tract. It is of importance to the stomach specialist on account of its frequent association with certain functional gastric disturbances, as hyperacidity and hypersecretion. It is also important to the clinician on account of its association with a certain disease, the so-called phosphatic diabetes of Tessier.

Phosphoric acid occurs normally in the urine in the form of alkaline (sodium and potassium) and earthy (calcium and magnesium) phosphates, in the proportion of 2 grms. of the former to 1 grm. of the latter. Their normal relation and excess in the urine can only be determined by a quantitative examination of the urine.

Triple phosphates of ammonium and magnesium appear in the urine only as the result of fermentative changes in the urine, due to the bacterial action upon the urea. The presence of such phosphates in a freshly drawn specimen usually denotes an alkaline cystitis.

There has been much discussion over the probable origin of an excessive phosphatic excretion. Normally, the phosphates in the urine are derived almost wholly from the phosphoric content of the ingested food. Whether or not the increased phosphoric acid excretion in pathological conditions is derived from the phosphoric acid contained in the nuclein and lecithin of the nervous system has not yet been determined.

According to Schlagentweit (*Munch. Med. Woch.*, July 4, 1911), phosphaturia is essentially a neurotic secretory disturbance of the kidneys. The irritation causing the nervous disturbance may originate outside of the urinary tract and may act by reflex influences; or it may be due solely to a functional anomaly of the kidney cells. As part proof of the theory that phosphaturia is a local neurotic affection, Schlagentweit cites the frequent association of phosphaturia with neurasthenia, hypochondriasis, intes-

tinal atony and mental strain. He also calls attention to the fact that irritation of the pelvis of a normal or diseased kidney by means of a ureteral catheter causes an increase of phosphates in the urine from the excited kidney, while the phosphatic excretion from the opposite kidney remains stationary.

In a recent article, Umber (*Therapie d-gegeun*, March, 1912) calls attention to the frequent occurrence of obstinate phosphaturia in cases of gastric hyperacidity and hypersecretion. The more hydrochloric acid secreted by the stomach the less acid the urine becomes, with a consequent precipitation of the earthy phosphates, which are held in solution in acid urine as double-acid phosphates. Gastric hyperacidity, therefore, plays an important role in some cases of persistent phosphaturia. According to Umber, the best way to overcome this is to reduce the hyperacidity by means of atropine, which he gives in doses of 1/300 grain three times daily, gradually increasing the dose to 1/60 grain three times daily or until intolerance is established. This may be continued for weeks.

In the ordinary form of phosphaturia in which the phosphates are precipitated in apparently increased but not excessive amounts, the condition may be remedied frequently by merely changing the diet. Albumins should be reduced to a minimum and carbohydrates correspondingly increased. According to Von Noorden, precipitation of phosphates can be largely avoided by adding calcium carbonate in the form of prepared chalk to the food. This may be given in doses of xv-xxx grs. three times a day. The phosphoric acid in the food is bound to the calcium and is eliminated by the intestines instead of in the urine. Benzoic acid and hexamethylene tetramine, given in ordinary doses, are said to overcome phosphaturia of the non-pathological type by increasing the acidity of the urine.

A disease designated phosphatic diabetes, first described by Tessier, should not be overlooked in the treatment of phosphaturia. This distinct clinical entity, although rare, is of importance. It is characterized by a persistent polyuria, great thirst, emaciation, pains in the back and loins and by a greatly increased output of earthy phosphates in the urine. This can only be determined by a daily quantitative analysis of the patient's urine. Instead of the proportion of alkaline to earthy phosphates being 1 gm.: 2

gms., in this condition the proportion may be 2 gms.: 5 gms. or more. According to some authorities phosphatic diabetes may be the precursor of a true diabetes or of tuberculosis, with which it is often associated. The treatment is directed towards improving the patient's general condition; forced feeding; milk-diet; fresh air, phosphorus quinine and strychnine.—(*Ibid.*)

The Treatment of Duodenal Ulcer.*

While there is no question that ulcer of the duodenum is a surgical condition, that operative interference is the only radical cure, that there is danger from prolonged ulceration causing adhesions to or inflammation in adjacent organs, that an ulcer in healing may cause narrowing of the duodenal canal and perhaps more or less obstruction, and that an unhealed ulcer may be the irritating cause of a future localization of carcinoma, still many patients will not submit to operation, and instances of cure and healed ulcers are frequently seen on autopsy and apparently often clinically occur. Consequently there is plenty of justification for the medicinal cure or medical management of duodenal ulcer.

Prerequisites of such treatment are:

1. The teeth, gums, mouth, tonsils and pharynx, if in bad condition, must all be properly treated and put into as nearly perfect order as possible.

2. A test breakfast, a test of the duodenal regurgitated fluid and a test of the feces must be made to determine, if possible, exactly the amount of disturbance in the digestive tract that is present.

3. The urine must be carefully examined to determine any liver, pancreatic and kidney disturbance.

4. The blood must be studied to determine the seriousness of the condition and the latent or reserve strength of the patient.

All of the above having been accomplished, the physician is ready to carry out the treatment. The treatment consists of:

1. The administration of a cathartic the night before the patient begins his treatment, such as the following:

| R | Gm. | |
|------------------------------------|-----|-----------|
| Hydrargyri chloridi mitis. | 15 | gr. iiss |
| Pulveris rhei | 25 | or gr. iv |
| Sodi bicarbonatis | 50 | gr. x |

M. et fac chartulam, 1.

Sig.: Take at bedtime with a cup of malted milk or other bland nutriment.

2. Absolute rest in bed for three weeks.

3. Early in the morning of the first day the patient should receive 10 gm. ($2\frac{1}{2}$ drams) of Rochelle salts, given in a glass of hot water. This, with the cathartic of the night before, will cause as near as possible surgical cleanliness of the intestine; and, as elsewhere, an ulcer must be kept as clean as possible.

4. Dry heat should be applied to the abdomen more or less constantly for ten days, best with an electric pad.

5. There should be no food for forty-eight hours.

6. A glass of hot water with a quarter of a teaspoonful of salt and a quarter of a teaspoonful of sodium bicarbonate should be given every four hours for four times. There should be no more water given for ten or twelve hours, except in sips as needed for thirst. The object of this is to clean off the mucus thoroughly from the inflamed duodenum, and then to give the stomach and upper intestine an absolute rest.

7. After forty-eight hours, viz., on the third day, very small quantities of nourishment should be given. The food must not excite the stomach to the production of much hydrochloric acid, as it is better to prevent its production or secretion rather than to administer olive oil, butter or atropin to stop it. This means that no meat or meat-juices or meat extracts or broths should be given, although some clinicians seem to find meat chopped fine and prepared in various ways a most valuable food, even in the early stage of the treatment of this disease. The nourishment should be in small amount, so as not to cause distention of the stomach and thus to interfere with the cure of any dilatation that may previously have been present. As soon as possible, of course, the food must contain sufficient calories to prevent further loss of weight, even if not much is gained for the first ten days. A very good nutriment for this period, viz., beginning on the third day, is a predigested and alkalized milk, *i. e.*, 2 ounces of peptonized hot milk with an ounce of Vichy, drunk slowly, and given every three hours during the third day of treatment. On the fourth day 3 ounces of peptonized milk and 1 ounce of Vichy should be given hot every three hours.

*Special Therapeutic Article, *Jour. A. M. L.*, June 22, 1912.

8. Two and one-half hours after every other administration of peptonized milk, viz., every six hours, and one-half hour before the next feeding, a glass of hot water should be given to wash the stomach and duodenum; or, if hot water is objected to, a clear, clean, fresh clam broth may be given.

9. On the fourth day the bowels should be moved by an enema, and this should then be daily repeated until later in the treatment.

10. On the fifth day 5 ounces of peptonized milk and 1 ounce of Vichy should be given every six hours, alternating every six hours with 5 ounces of a thin, strained oatmeal gruel given hot, and followed by 2 ounces of warm Vichy; in other words, one or other of these feedings every three hours.

11. As the patient needs iron, and he is receiving no meat, a 3-grain tablet of saccharated oxid of iron should be given twice a day with the nourishment for a period beginning with the fourth day of the treatment. The tablet should be powdered before taking.

12. On the sixth day the cereal (oatmeal gruel, salted) should be continued and a raw egg on cracked ice with a trace of lemon juice should take the place of one milk feeding. The other feedings of milk on this day should be not peptonized, but given with Vichy as before.

13. Hot water at least twice a day should be given one-half hour before a nourishment.

14. After ten days there should be a gradual increase in the food; first two raw eggs; then they may be cooked; shredded wheat bisenit, malted milk, junket and gelatin flavored with lemon or orange (no alcohol, tea, coffee, and only exceptionally tobacco should be allowed) may be given. Later, finely chopped fresh chicken, roasted oysters in season, fresh steamed soft clams, chopped little necks served in broth, mutton, chicken and beef broths may be gradually added to the now increasing diet. Still later, chopped beef made into a pate and broiled may be given once a day, and the frequency of the feedings changed to five times a day, then to four times. Water may now be taken cool, but not cold, but not much liquid should be given or allowed with any one meal, so as to prevent still longer the stomach becoming distended.

15. The daily enema for the bowels should be given for ten days, which, with the four days before such treatment was used, means up to

two weeks from the beginning of the treatment. Nothing else should be given to cause bowel movements unless they are very unsatisfactory. If such is the case, a sufficient amount of effervescing sodium phosphate may be given each morning, in hot water, but it should not be taken until it has nearly finished effervescing—not while it is storming.

16. After two weeks the enema should be stopped and sodium phosphate in the morning should be relied on to cause a movement of the bowels.

17. The patient having been in bed for three weeks, convalescence to last a week should be inaugurated. This means a gradual getting up as from typhoid.

18. The patient having recovered from his illness and its treatment, should take one month's rest, *i. e.*, at the end of the four weeks, at some country, mountain, or seashore resort, depending on the time of year. Or, if this is impossible, a month's rest at home, with plenty of out-door rest, should still be insisted on. At the end of this time, viz., eight weeks, there should be a gradual resumption of his occupation, the patient being careful for a long time not to take into his stomach anything irritant, too cold, too salty, or any harsh, rough food, or anything that is acrid or may become acrid, as grape-fruit, strawberries, or anything that is too acid, as vinegar, pickles, etc. He should also be careful about getting chilled.

19. A laxative tablet will probably be needed for some time. A very satisfactory one is as follows:

| R | Gm. | |
|----------------------------|-------|----------|
| Sulphate of Strychnin..... | .0015 | gr. 1/40 |
| Aloin | .02 | gr. 1/3 |
| Powdered ipecac | .03 | gr. 1/2 |
| Extract of belladonna..... | .006 | gr. 1/10 |

This should be taken after supper and not on an empty stomach. If it acts in the night when given at this time, it may be given at bedtime, but not on an empty stomach. The patient should have a cup of malted milk with a cracker or two broken into it before the tablet is taken.—(*American Medicine*, June, 1912)

The State Health Department has issued its annual *Register of Physicians in Virginia*. It is up to its usual excellent standard, and includes a list of Health officers and a roster of Registrars of Births and Deaths in this State.

Correspondence.

Vaccines in the Treatment of Typhoid Fever.

To the Editor:—About six years ago the writer began to use vaccines in the treatment of typhoid fever. Since that time he has thus treated more than one hundred cases and has obtained numerous articles upon the same subject written by physicians in various parts of the world. It seems possible, however, that some may have escaped notice. He also realizes that many of the profession may have treated some cases without reporting them. A paper upon the subject is now in the course of preparation. In this it is earnestly desired to incorporate reports from a large number of cases, good, bad, and otherwise. He accordingly makes the following request to the readers of *Semi-Monthly*:

Will any one who has used vaccines in the treatment of typhoid fever, whether but one case or more, kindly communicate to him that fact, accompanied by name and address of the reporter. If the results have already been reported, a note of the journal in which they appeared will be sufficient. If they have not been reported, a short blank form will be sent to the physician to be filled out. Due credit will be given in the article to each person making a report. If any physician happens to know of other confreres who have any such cases, it will be appreciated if he sends their names, as they may not happen to read this note. It is hoped that by this means a sufficient number of cases may be collected to somewhat definitely settle the now mooted question whether vaccines are or are not of benefit in typhoid therapy.

Reports of cases will be accepted at any time in the future, but preferably by November or December of the present year.

Kindly communicate with Dr. W. H. Watters, Director of the Department of Pathology and Bacteriology, Evans Institute for Clinical Research, Boston, Mass.

P. A. Surgeon D. G. Allen, U. S. Navy,

Has been transferred to the Norfolk Hospital, vice P. A. Surgeon M. A. Stuart, who was ordered to the Las Animas Hospital.

Book Notices.

Manual of Practice of Medicine. By A. A. STEVENS, A. M., M. D., Professor of Therapeutics and Clinical Medicine, Woman's Medical College of Pennsylvania. Ninth Edition, Revised. 12 mo. 573 pages, Illustrated. Philadelphia and London: W. B. Saunders Company, 1911. Flexible Leather, \$2.50 net.

To anyone who has seen this Manual, there is no need of a word of commendation from us. To those who have not seen it, however, the fact that the demand for it has led to the issuance of the Ninth Edition will speak for itself. The popularity of this book has been brought about by the practical yet brief manner in which the author has dealt with each subject. This edition has met with the usual revision throughout, and much new matter has been added to supplement or replace the old. We bespeak for this volume the same hearty welcome that has been accorded it in the past.

Spondylotherapy — Physio-Therapy of the Spine Based on a Study of Clinical Physiology. By ALBERT ABRAMS, A. M., M. D., F. R. M. S., Consulting Physician to the Mount Zion and French Hospitals, San Francisco; Formerly Professor of Pathology and Director of the Medical Clinic, Cooper Medical College. Third Edition, Enlarged. 8 vo. Pages xxiv—673. 146 Illustrations. Philopolis Press, San Francisco, Cal. 1912. Cloth. \$5. net.

This is a most interesting book on a subject about which the regular profession has paid little attention. Spondylotherapy deals with the treatment of diseases through the vertebral column, though the author, who is a prominent physician of the regular school, has by no means attempted to limit himself to this method, for he has incorporated many facts relating to the employment of drugs,—using all the resources of scientific medicine in the effort to relieve or cure. That this form of treatment, through the evidences of results attained, should have greater recognition in the curriculums of medical institutions is coming to be more commonly appreciated, and the author, by lifting spinal therapy to a place befitting its scientific importance, has rendered a real service to legitimate medicine. The physician who declines solely through prejudice to take advantage of whatever of good spondylotherapy may offer cuts himself off from many measures that would be of benefit to his patient. As far as we know, this work by Dr. Abrams on spinal therapy is the most creditable and valuable that has yet been published.

Editorial.

Registration of Births and Deaths in Virginia.

Few enactments of the last Virginia Legislature will be of as far-reaching importance to the people at large, and to the proper prosecution of State Health work, as that creating a Bureau of Vital Statistics.

Previous to that time Virginia, along with other Southern States, was in a class with Turkey and China in this respect.

In every other European country complete records of births and deaths have been kept for centuries. A prominent physician states that when visiting recently at his ancestral home he was able to trace his own family back by public records for five hundred years, and that his wife's line could be carried much further.

At this time hundreds of prominent families in Virginia are finding difficulty in tracing their ancestors back, even to the Revolutionary War, though perfectly satisfied that they might rightly claim a much longer existence in America. Many people of influence can scarcely tell you the names of their grandparents. Every life insurance examiner knows what meagre family history records he secures in the larger portion of his examinations. Moreover, there is in existence no possible means of proving these facts, no matter how important the reason for it be.

The end of this state of affairs is at hand. We are now to have the births of our boys and girls recorded with as much care as has been given to recording the birth and ancestry of blooded calves, colts, pups and chickens. The Health Department will soon be in position to make a comparative study from year to year of the deaths from preventable disease, and be able to judge as to its success in the great fight against these destroyers of life and health.

With the handicap of an insufficient appropriation, many important features of the work cannot be attempted. The work of organization, however, and the education of the public, have been pushed with vigor, and the reports of births and deaths have been coming in to the Department of Health in an extremely satisfactory manner. The work even now has progressed so far as to make its success an assured fact.

The medical profession is peculiarly interest-

ed in this work from scientific and sociological stand-points, which need not be enumerated here. Upon the assistance of every physician depends the most complete success of the undertaking.

The time is now past when a physician who makes any pretence to being a man of science, can object to the slight inconvenience which making out a birth or death certificate may give him.

The general public is becoming too well informed to permit slipshod habits in its medical men, and is demanding the protection which the family physician may give in this particular, as much as in advice as to the prevention of the spread of infectious and infantile diseases.

In well-organized communities the writing of birth or death certificates is looked upon as much a matter of fact, as the writing of a prescription.

The medical profession of Virginia cannot be urged too strongly to stand as one man by this important action of the Legislature.

Ready compliance with this new demand of the State will be one of the strongest arguments we can present when we apply again to have lifted from our shoulders the burden of the physicians' license tax, which we are now carrying.

Medical Society of Virginia.

At the coming meeting of our State Society in Norfolk, October 22-25, Drs. Hugh M. Taylor, of Richmond, and Paulus A. Irving, of Farmville, will preside as president and secretary, respectively, and Dr. Greer Baughman, of Richmond, will be present as treasurer to receive all "that is coming to him." Dr. W. L. Harris, of Norfolk, is chairman of the local committee of arrangements. The sessions will be held at the Monticello Hotel, and the subject of Gastric and Duodenal Ulcer, in all of its phases, with treatment of same, will be the subject for general discussion. A large number of other interesting papers will also be presented, including those by invited guests, Drs. William Gerry Morgan, Washington, D. C.; Henry K. Hancock, Philadelphia, Pa., and Lewis Coleman Morris, Birmingham, Ala. Norfolk hospitality is so well known and appreciated that it is needless to say that all members who can leave their work will be there.

The Southern Medical Association,

At its meeting in Hattiesburg, Miss., last

year, created a Commission for the Study and Prevention of Malaria, and the president of the Association appointed nine men of eminence, who have been interested in this work, to make a report at the meeting in Jacksonville, Fla., November 12-14, 1912, as to the prevalence and types of malaria in the Southern States, with a view to determining upon the best means for the eradication of the parasite causing the disease. This is only one of the many problems in medicine affecting the Southern people especially which will come up before the Association for discussion. Convinced of the need for a distinctively Southern medical organization for discussing questions of paramount interest and importance to the Southern States, it was decided at last year's meeting to invite all members of medical societies in the fourteen Southern States to become members of this Association.

Present officers are: President, Dr. J. M. Jackson, Miami, Fla.; Vice-Presidents, Drs. Frank A. Jones, Memphis, Tenn., and D. J. Williams, Gulfport, Miss., and Secretary-Treasurer, Dr. Seale Harris, Mobile, Ala. The Association is divided into four sections—medicine, surgery, ophthalmology, and hygiene and preventive medicine—with representative men also as officers of these sections.

Any of the above named doctors will gladly furnish such information as may be desired by prospective members.

Sanitary Condition of Public Schools in Virginia to Be Improved.

The Virginia Health Department has decided to take up, as a part of the winter's work, a careful study of the sanitary condition of the schools of the State. A large number of the public schools in the counties have been found to be without proper out-buildings, and it will be the aim of the State Board of Health to see that all schools are made thoroughly sanitary.

It is most necessary that the sanitary condition of the schools should be investigated and corrected when it is realized that so many thousands of children spend many hours almost daily in school, and this too at the most critical period of their development. As an argument in support of this work looking to the protection of the health of the children, it may be of interest to state that in an estimate furnished the United States Bureau of Education by Dr. Thos. D. Wood, of Columbia University, he shows

that "of the 20,000,000 school children in this country, not less than 75 per cent. need attention to-day for physical defects which are prejudicial to health and which are partially or completely remedial."

The American Public Health Association,

Which met in Washington, D. C., the middle of September, selected Colorado Springs, Col., for its next annual meeting, and elected the following officers: President, Mr. Rudolph Herring, New York; Vice-Presidents, Drs. W. R. Batt, Harrisburg, Pa.; Jas. Roberts, Hamilton, Ont., and J. E. Monjaraz, Mexico, and Secretary-Treasurer, Dr. Livingston Farrand, New York.

The Mississippi Valley Medical Association

Will hold its annual meeting in Chicago, Ill., October 22-24, Dr. Louis Frank, of Louisville, Ky., presiding. Dr. Henry Enos Tuley, also of Louisville, is secretary of the Association.

The North Carolina Sociological Association

Was organized at Raleigh, September 17, for the purpose of correlating all agencies for the betterment of conditions and uplift of the people of that State. The organization of this Association is the outcome of the recommendations of the Southern Sociological Association recently held at Nashville, Tenn., to the effect that State organizations should be perfected in all Southern States. Dr. L. B. McPrayer, of Asheville, has charge of the work in the department of the feeble-minded, and Dr. W. S. Rankin, of Raleigh, of the department of public health.

North Carolina Association for the Prevention of Tuberculosis.

The seventh annual meeting of this Association will be held at High Point, N. C., October 29 and 30, Dr. Richard H. Lewis, of Raleigh, presiding. Dr. C. A. Julian, of Thomasville, is secretary-treasurer. The Committee of Arrangements is composed of Drs. D. A. Stanton, J. T. Burrus, and J. R. Reitzel, all of High Point. The meeting promises to be one of the largest and most successful in the history of the Association, and a banquet will be tendered those in attendance.

West Virginia Tuberculosis Sanatorium.

Dr. E. E. Clovis, Hebron, W. Va., has been appointed superintendent of the above sanato-

rium, which is now under construction in Preston County, West Virginia, and will be ready for use about the first of November.

The United States Civil Service Commission,

Washington, D. C., announces an open competitive examination for men only for assistant in experimental therapeutics, Philippine Service, which position will pay a salary of \$2,000 a year. Persons desiring this examination should apply at once to the above address for Form B. I. A. 2, as the application, properly executed, including medical certificate, should be filed with the Commission at Washington prior to the hour of closing business on October 11, 1912.

Medical Colleges Opening.

Reports from the various medical colleges for the 1912-1913 session are most encouraging, statistics showing the enrollment of students to be as large or larger than in former years. Evidently the embryo doctors are optimistic and do not believe the many reports of improved health conditions, or possibly they all hope to become health officers.

Norfolk (Va.) City Officials Include Doctors.

At a meeting of the City Council, early in September, Dr. Southgate Leigh was elected president of the Common Council and Dr. Powhatan Schenck was re-elected Health Commissioner.

Removals of Richmond Doctors.

Dr. G. Paul LaRoque has moved to 403 East Franklin Street; Dr. M. B. Coffman to 708 West Grace Street, and Dr. Blanton L. Hillsman to 406 West Grace Street.

Dr. O. C. Brunk,

Formerly superintendent of the Eastern State Hospital, at Williamsburg, Va., but more recently of this city, is improving rapidly since having been operated on at a local hospital for appendicitis.

The International Congress for the Study of Infantile Hygiene and Pathology

Will be held at Paris, France, October 7, 1912. A special request has been sent to the United States through the Paris Academy of Medicine, asking as many pediatricists as possible to attend. The honorary president of the Congress is the minister of public instruction of France.

Scarlet Fever in Richmond.

Although a number of cases of scarlet fever have been reported to the City Health Department recently, the disease seems to be in an unusually mild form, and is apparently under control. The only cause for alarm was due to the fact that the outbreak occurred just at the beginning of the school season.

The Denver Chemical Mfg. Co.,

Manufacturers of Antiphlogistine, have secured the services of Mr. Harold B. Scott as manager of the company to succeed Mr. J. C. Bradley, who is retiring from that position. Mr. Scott, upon graduating from Yale University, entered the commercial world, where he has been most successful, and he is peculiarly well fitted for the management of this company.

Obituary Record.

Dr. George Washington Opie Maupin,

One of the oldest members of the medical profession in Portsmouth, Va., died at his home in that city, September 17. Born in Portsmouth sixty-seven years ago this month, he received his academic education at the University of Virginia, and studied medicine at Bellevue Hospital Medical College, New York City, from which he graduated in 1869. He served in the Confederate Army in the War between the States as a member of the Norfolk Artillery Blues. Always prominent and popular in his home town, he had held many honors there. He was elected first Health Officer and Physician to the Almshouse, and was later City Coroner. He was a member of the State and several other medical societies.

Dr. George W. Butts,

Of Chuckatuck, Va., died suddenly while on a visit to a daughter at Port Norfolk, September 6, aged sixty-nine years. After serving in the Southern Army in the Civil War, he studied medicine at the Medical College of Virginia, from which he graduated in 1868. He was one of the oldest and most prominent citizens of Nansemond County, in which section he had practiced medicine for a long number of years. Up to a year ago he was County Treasurer, and at the time of his death was president of the Board of Visitors of the Deaf, Dumb and Blind Institute at Staunton. His widow and three daughters survive him.

THE Virginia Medical Semi-Monthly.

(FORMERLY VIRGINIA MEDICAL MONTHLY.)

Vol. 17, No. 13.
Whole No. 397.

RICHMOND, VA., OCTOBER 11, 1912.

10 Cents a Copy.
\$2.00 a Year.

Original Communications.

OBSERVATIONS UPON POST-OPERATIVE TREATMENT.*

By CHARLES S. WHITE, M. D., Washington, D. C.
Associate in Surgery, Emergency Hospital; Associate
in Surgery, George Washington University
Hospital.

That the average graduate has little knowledge of the post-operative treatment and that the surgeon gives this subject much less consideration than it deserves, will be admitted by the majority of medical men who have served as internes in hospitals, where the opportunity to observe the errors of omission and commission can be best appreciated.

I feel no hesitancy in saying that much of my instruction in surgery, while a student, was misdirected, not because of the deficiency of the chair of surgery, for it was in competent hands, but the methods in vogue at that time hardly met the requirements of the graduate, meagre as they may seem now, and even today, that fault still exists to some extent, for I am convinced that much amphitheatre work could be replaced with bedside instruction. The tendency to exploit the rare or difficult operation or the ingenuity of the operator, has subjugated the question of surgical treatment, and students are generally left to surmise the results of surgery in the clinic, and to their credit it may be said that they are more charitable than cold statistics.

It is no uncommon event to see the best mechanical ability and the best surgical diagnosis discounted by poor after-treatment. It is a very important side in the occasional case, and it is perhaps the infrequency of complications that has allowed us to look upon the convalescence with almost indifference. Our knowledge of after-treatment may be compared to the posses-

sion of a firearm. We do not need it often, but when we do need it, the best is not too good.

It is not my intention to discuss the complications of operations but to discuss the after-care in what may be considered a normal case, more particularly celiotomies. The symptoms need no systematic arrangement for consideration, but one of the most distressing and obstinate is vomiting.

Foremost as a cause of vomiting is the anesthetic. The emesis cannot invariably be prevented by any known method, but it can be increased or diminished by the amount and manner of administration of ether or chloroform. There is little doubt that chloroform causes less gastric irritation than ether, but a wholesome fear of sudden death has largely eliminated the former as an agent. Ether by the drop method, and it may be said parenthetically that the drop method in the hands of many anesthetists becomes the closed method by the application of towels about the cone, produces the minimum reaction. In a previous paper I have called attention to post-operative gastric lavage as a prophylactic measure and the elapse of several years has not changed the opinion that it is of positive value in preventing vomiting.

Proper dietetics, next to the administration of the anesthetic, is of greatest importance, and it is a question which has received insufficient notice. Food is not restricted early enough in the practice of most surgeons, for we know only too well that the average American is an overfed person. Digestion requires much longer than most of us believe, and it is the exception to have the alimentary canal free from partially digested food. It is no wonder that the stomach is an insurgent organ. Vomiting may assume serious proportions and terminate fatally. I am not cognizant of a single drug that may be regarded as a specific in any sense of the word. Food should be withheld after operation for at least twelve hours, and better, twenty-four. The stomach is rarely in a condition within this time

*Read at a meeting of the Allegany County (Md.) Medical Society, April 10, 1912

to alter or absorb food, and the use of it under such conditions adds fuel to the gastric flame. The emesis is occasionally so obstinate that for days all food is rejected. Gastric lavage is indicated in this condition, or I may say, before this condition is present. The washing of the stomach is not a difficult or a painful operation and its earlier use would go far to mitigate the gastric disturbance following operations.

When vomiting has not been successfully combated, the question of sustaining the patient is paramount, and the usual resort is rectal feeding. The estimate of absorption by this route is too high and I would warn against the confidence placed in it. Few foods per rectum are well borne, proteids fairly well, fats and sugars poorly. Many physiologists believe that the proteid which is taken up in this way is not converted into the same ultimate compounds as though the food passes through the stomach and duodenum, and that the caloric value of food by rectal alimentation is very low.

I have no faith in the inunction of oil as a means of providing food by absorption and the injection of oil under the skin is without justification, as such material remains unchanged where injected or seeks a new location by gravity alone. This has been definitely settled by animal experimentation.

After a general anesthetic and more especially after operations upon the intestines, constipation is the rule for a short time, but purgatives are of little avail within the first twenty-four hours. It is due, in all probability, to an inhibition of peristalsis, usually transient in character. Drugs which act by stimulation of the vermicular movements are useless unless the muscle retains its tone. There seems to be an implied rule or tradition that calomel should be given after every operation, but there is no reason why almost any other purgative which is acceptable to the stomach should not be substituted. We need very much a safe, reliable purgative which may be given hypodermically.

The accumulation of gas within the bowel and stomach is a source of great concern to the physician and pain and annoyance to the patient. Adhesions are not nearly so often the cause as bacterial fermentation within the intestine. The generation of gas can over-distend and paralyze the intestine as completely as a strangulation, the so-called adynamic obstruction. Two reasons exist for this excessive gas: First, the lack of secretion of bile, pancreatic juice and suc-

cus entericus, due to the inhibitory action of the anesthetic or shock, and second, the gastrointestinal tract contained food in the process of digestion when the anesthetic was administered. The insufficiency of enzymes cannot be prevented, and as far as I know, cannot be quickly corrected by medication, but it is possible to minimize the amount of intestinal content. Should the stomach and intestine be empty, the gas will be small in amount. Improper preparation is the cause in a large percentage of the cases. The practice of operating without thorough preparation is a glaring fault at the present day, and while the urgency of many cases demand operation without purgation and a special diet, in many other causes we allow financial consideration, the patient's or our own, to deflect our better judgment. Treves sums up the subject in this way: "In hospital practice it is better not to operate upon a man who comes straight to the ward from some out-door work. * * * * The practice is frequent for the operation has been previously arranged, and the man does not want to lose even a few hours work. Such a patient is placed in an infinitely better condition by a few days rest in a hospital ward. * * * * What is worth doing at all is worth doing well, and not a few operations, the performance of and the recovery from which have to be compressed within a few hurried days, would better not be performed at all."

In the presence of abdominal distention, many purgatives are used but few are useful. Speaking for myself, eserine sulphate or salicylate, grain 1-30 to 1-40 hypodermically, with an enema of turpentine, glycerine, and Epsom salts, or the alum enema, have been the most efficacious. The molasses enema has given excellent results on two occasions.

It would seem rational to use the lactic acid bacillus in compressed tablets several weeks before an operation, with the idea of implanting them and diminishing the activity of the gas-producing organisms. Naturally, the opportunity of this preliminary treatment is restricted, but it is my intention to put the theory into practice.

Emptying the bladder voluntarily is often impossible within a day after an operation, but the period may be extended several days or a week. This can be ascribed to nerve insolvency, posture or pain. The general rule is to order the patients catheterized in eight hours. It is perfectly safe to allow a longer time to elapse

and often desirable, for the quantity of urine excreted is then large enough to act as a stimulus. Once that catheterization is instituted the patient loses the confidence in his ability to carry on this normal function, much to his discomfort and not without risk of bladder infection. The application of hot water bags over the pubes is a slight aid. I have found that if a patient is allowed to turn face downward in bed the act is often easily accomplished. "Nothing succeeds like success" applies to urination as well as to other material things.

The question of pain would ordinarily come in for little attention were it not for the fact that many operators have wide differences of opinion regarding the use of anodynes. Pain of the excruciating, unbearable kind will increase shock. Of that there can be but little doubt. It can be relieved by opium, but produces constipation, and constipation is the forerunner of adhesions. This is the stand taken by many surgeons, and perhaps wisely, but it has seemed to me that the fear of complications from the use of opium has been exaggerated, that needless suffering has been borne by the patient. I venture to say that if the operator sat by his case for twelve hours he would need no further argument for a humane dose of morphine or heroin. Ask a physician who has been operated upon if he will use opium in his post-operative treatment. The answer is unanimously "yes." The indiscriminate use of this seductive drug is attended with danger, but this does not contravene the use of it. Belladonna, hyoscyamus, bromides and chloral do not replace it. I have never seen a case in which I believed morphia was the sole cause of obstruction, and believe such cases are extremely rare. The practice of withholding for fear of obstruction seems unsupported by clinical evidence.

Next to pain, thirst is one of the most distressing conditions that we have to meet. It is generally believed to be due to the lessened fluidity of the blood which accompanies the anesthetic state. While vomiting continues, water should be withheld, unless the object in giving it is to wash out the stomach. Cracked ice will not relieve thirst, but does make the mouth cool, moist and comfortable. When the stomach will not tolerate water, salt solution or tap water per rectum satisfies the thirst in a measure. Hypodermoclysis is a more painful way of doing the same thing. The free use of water is most desirable, in that it promotes the

function of the kidneys and the organs of digestion. I have not noted that hot water possesses any great advantage over cold, and as a matter of fact the temperature is rapidly reduced to that of the stomach, but from the emphatic manner in which some operators express themselves upon this point, one might suppose that the success of the operation largely depends upon the temperature of the water given subsequently.

Posture of the Patient.—Very little thought is given the position of the patient, unless hemorrhage or drainage demand something unconventional. In many hospitals the patient is kept upon the back until a written order allows the nurse to turn the sufferer upon his side, often after the lapse of twelve or twenty-four hours. The only valid reason that occurs to me for this principle of keeping the patient supine is to diminish the possibility of hemorrhage. Turning from side to side, may, by some mental process, allow us to believe that it will displace clots in vessels or break sutures. If a patient can pass through a period of vomiting without the occurrence of this complication, then it seems beyond the pale of probability that being gently turned upon either side could produce more trauma.

Several well known operators allow their laparotomies to get out of bed in two or three days, many more let them sit up in a chair in five or six, and yet others keep them in bed for three weeks. Who can say that this man is wrong or that one is right when the ultimate results are practically identical? The obstinacy with which certain old ideas and customs are clung to would be most commendable were it in behalf of a worthier cause. I know from bedside experience that a patient may not only be turned with safety, but with the greatest comfort after most operations. It would seem that post-operative adhesions would be less likely to form if such turning does produce shifting of the intestines.

Stimulation.—If there is one group of drugs which is abused in operative cases, it is stimulants. Almost every laparotomy patient is given useless doses of strychnine or digitalin. The hospital interne places himself in the position of a sharp-shooter, and every suspicious variation of the pulse is met by the ever-ready hypodermic injection. The flagging pulse which attends nausea and vomiting is met this way. The motto seems to be: "When in doubt, stimulate." In my own practice it is very unusual to use

stimulants of any sort, and I do not recall over three cases in the past year when I found it necessary. All patients do not have shock, and a standing order to use a stimulant to ward off something which does not happen is unwarranted. Many practitioners use stimulants just as they would seasoning in their food—a little dash here and there to bring the pulse to the desirable points. The fault lies with the surgeon in allowing internes to use the drugs recklessly. Not infrequently the surgeon sets the example. I am convinced that the best single drug for stimulation is strychnine. Camphor, ammonia and coffee may be of some value.

There is one last thought, which may be irrelevant, that has been uppermost in my mind for a long time. It is the inadequate facilities for treating patients when they leave the operating room. It is a great mistake, but unfortunately cannot be avoided for lack of accommodation, to remove a patient to his room or to the ward immediately after the operation. Very few hospitals in this vicinity have recovery rooms, and if they do possess them, are remote from the operating room. The recovery room should be as close to the operating room as possible without being contaminated by the nauseous odors or within hearing of equally frightful sounds emanating therefrom. It should be quiet, well ventilated, in charge of a nurse who devotes her entire time to the immediate care of the patient for twelve hours at least. This room should be thoroughly equipped with apparatus for saline administration, hypodermic medication, oxygen—in short, all apparatus for such prompt treatment that may be necessary in the first forty-eight hours. Most patients leave the table with a moist skin and a sub-normal temperature, ride one, two or three stories upon an elevator and are wheeled down a corridor, often poorly lighted and exposed to draughts. Much of the so-called anesthetic pneumonia can be laid at the door of this dangerous transportation. The practice is wrong from every point of view. It is extremely difficult for an anesthetist to be cognizant of the patient's condition while they are jostled upon a ward carriage and plunged into the depths of badly-lighted halls. This is a brief but sometimes hazardous period, because there is little protection against accident. There is another phase of this procedure which deserves attention. To other patients and visitors the sight of an unconscious, coughing or vomiting patient with the usual coterie (the antiseptic

brigade), does not tend to lessen their own woes or inspire courage for an operation. There is a disregard of the finer feelings in this sort of an exhibition which could be remedied in most hospitals with little expense.

We have advanced the technical side of surgery at an amazing rate, but it appears that we have undergone a retrogression in the personal side, and such a side surely exists. There are many qualities of the older surgeons we could do well to emulate. They knew their patients as human beings, almost as brothers, knew their hand-shake and the sound of their voices. To-day I doubt if we occupy the same position. Let us hope that it is our zeal to perfect ourselves in the art and not commercialism that has wrought this change.

911 *Sixteenth Street.*

A STUDY OF BRAIN TUMORS.*

By E. M. HUMMEL, M. D., New Orleans, La.
Visiting Neurologist, Charity Hospital.

The incidence of brain tumor is great enough to constitute this one of the very frequent grave affections of the central nervous system, and so often does it go unrecognized in its early stages, when surgical treatment especially is of most avail, that a discussion of the subject seems profitable, even though one may be found repeating many commonplaces quite familiar to those who have paid much attention to the subject.

It is not a matter of such great difficulty to recognize that the cerebral mass is primarily involved in disease, because our knowledge of its general and special functions is now rather definite in many respects. Usually when the central nervous system is implicated through the circulation in toxic processes originating elsewhere in the body, the presence of the latter and the manner in which it is operating to secondarily involve the brain is so obvious as to not give rise to confusion. With reference to lesions of the central organ from rupture and disease of the vessels, degenerative processes, the results of trauma, encephalitis, inflammatory conditions of the brain and enveloping membranes, none of these are likely to be confused with true tumor formations in the brain substance proper if the history is known and if sufficient care is exercised in the examination. Two diseases form possible exceptions to this—namely, multiple

*Read before the Fifth District Medical Association of Texas, with exhibition of specimens, at San Antonio, Texas, April 4, 1912.

sclerosis and general paresis. However, a close analysis of the facts pertaining to the history and the symptoms even in the latter instance will usually obviate confusion.

It is not so much the question of distinguishing tumor from other lesions that makes the study of cerebral neoplasms such an intricate one, as the recognition of the very presence of small or incipient growths, their nature and location, their amenability to medication and surgical treatment and the consequent prognosis. A detailed consideration of the various data that have been collated within comparatively recent years relative to the focal diagnosis of lesions of the brain would be beyond the scope of this paper, but I shall mention some of the more important symptoms which have assumed clinical importance in the determination of these points, to the exclusion, however, of such neurological refinements as still remain of uncertain and doubtful value.

As regards the chief signs pointing to the presence of intracranial growth, many of these have long been familiar subjects of medical study. The one most frequent indication of the presence of neoplasm within the cranium is headache. In determining the value of this symptom, we must attempt to distinguish the peculiarities of cephalgia produced by progressive organic disease. In the first place the pain though produced by a constantly acting cause is notoriously intermittent in its early stages. This must be explained by the fact that the intracranial circulation is capable of shifting and adapting itself to the encroachments of pressure, not only by modifying the quantity of fluid and lymph within the cranial cavity, but by distributing these fluids to particular parts in the tissues. It should be remembered that direct injury to the brain substance proper does not produce pain, but that the enveloping membranes are highly supplied with brain fibers and corpuscles, and that pressure or stretching on these is very painful. Herein is implied the explanation of the fact that anything that tends to relieve intracranial pressure, such as spinal puncture and free purging of the bowels, has a tendency to lessen these headaches. The fact also that the headache is intensified by sneezing, coughing, stooping, straining, etc., is explained in the same way. If the meninges are implicated in the disease directly, the pain is usually constant and localized.

The headache of brain tumor when it has as-

sumed a certain intensity is very little influenced by the ordinary pain destroying drugs, not even yielding to opiates unless these are given in large enough doses to blunt the psychic appreciation of pain. Such headaches are variously described as boring, grinding, crushing in character. The pain may be limited to certain portions of the head, but most frequently when it is intense it is generalized. Circumscribed tumors are known to sometimes produce headaches localized to their site, and sensitiveness of the scalp to pressure and percussion over the tumor has also been noted especially when the tumor is near the surface and the bone and meninges have become involved by erosion or as above inferred. But such symptoms should be interpreted with caution in establishing a focal diagnosis. Tumor headache when intense overwhelms the subject to such an extent as to partially inhibit cerebration and the subject prefers to remain perfectly quiet in a darkened room, any movement or nervous activity being disagreeable. An experienced neurologist learns to recognize something characteristic about the facies of a patient suffering from these headaches as the face wears a certain impress of suffering not seen in any other condition.

At the height of the headache cerebral vomiting is most apt to occur. This might take place, however, independent of cephalalgia. Although vomiting is regarded as one of the frequent signs of brain tumor, my experience in the careful observation of some nineteen cases would indicate that this symptom is not of great frequency. Pure cerebral vomiting is indeed a rather rare occurrence. On the other hand, various disturbances of consciousness in incipient tumor have in my experience been rather more frequent than ordinarily regarded. Some of the strangest things can happen in this regard, and such may vary anywhere from simple momentary suspensions of consciousness to prolonged somnolence with or without neglect of the organic necessities. Such disturbances are exceedingly difficult to distinguish from the so-called functional manifestation of hysteria and epilepsy. Indeed, I do not know of any more difficult question of solution than that of determining between a beginning idiopathic epilepsy and the incipency of brain tumor.

Beginning brain tumors might give no indication of their presence otherwise than the production of purely epileptoid seizures. Of course when the epilepsy is Jacksonian in type, sus-

picion is immediately directed to a lesion, but inasmuch as the motor centers constitute only a small portion of the brain volume, such significant symptoms are comparatively rarely present. The possibility of developing tumor should always be kept in mind in cases of epileptoid seizures developing suddenly in adult life. A case came to me last summer with the sole symptom of the occurrence of brief partial suspensions of consciousness (5 to 10 seconds) resembling very much the small seizures of epilepsy. Conditions were such as to make it absolutely impossible to determine between an organic condition and epilepsy. Suspicion was directed towards some progressive organic disease on account of the man's age (45 years), and a negative family and personal history for epileptic or any allied neurosis. This man died of the symptoms of brain tumor last December, as I was recently informed from his home. It seems that nothing characteristic of tumor developed until a few days prior to death when choking of the optic discs and coma supervened.

Even when severe general convulsions occur, the same doubt may obtain. I have seen cases which finally developed the unmistakable signs of brain tumor where the first and only symptom was the incidence of severe general convulsions resembling exactly the grand seizures of epilepsy. Under these circumstances, the medical attendant is compelled to withhold an opinion until sufficient time has elapsed to enable him to exclude progressive brain disease. In this connection, it is important to remember that the exudative processes of syphilis are frequently responsible for epileptoid manifestations; such a possibility must be ruled out before the diagnosis is passed upon.

About three years ago I reported in a group of three cases of pathological sleep (all of which were at the time without signs of organic disease) one characterized by the fact that he was unable to rouse himself from what began as a natural night's sleep. At the time I expressed the suspicion that some grave disease might be developing in the nervous system. This man died about eight months ago with signs of brain tumor. Several months ago I saw a child in the children's ward of the Charity Hospital at New Orleans, with a history to the effect that the patient had for several weeks been drinking enormous quantities of water. There was no sign of physical disease in the case other than slight paleness and reduction in the hemoglobin of the

blood. Every possible explanation had been sought for the peculiar symptom in the case. The child was somewhat dull and confused. Otherwise all the nervous and mental functions appeared to be normal. If given access to water, the patient would drink continually, and this drinking was limited only by his capacity to contain the water. It was evident that enormous dilatation of the stomach had been produced since the perverted habit had been acquired. The boy was six years old but could not give any explanation of his practice other than that he was always thirsty. This symptom persisted during the whole several weeks the child was in the hospital. We learned later that this child died with symptoms of brain tumor and that one of the hospital internes sought a post-mortem and found a tumor growing at the base of the brain involving the basal ganglia and probably originating in this locality. It would have been exceedingly instructive and interesting to ascertain the exact origin of this tumor and what structure it was disturbing to produce the pathological thirst. Disturbances of the organic appetites have been noted on several occasions in conditions producing gross changes in the brain substance especially in case of multiple sclerosis and tumor growth. Some light has been thrown upon the physiology of the basal structures of the brain in cases where the pathology has been studied carefully.

As a matter of course, mental symptoms develop in the majority of cases, especially in the later stages, but I would not essay to describe these here, though the psychoses of organic brain disease are characteristic, and it is nearly always possible to distinguish them. I do not think, however, that this can be done with any certainty except by a physician trained in psychiatry, as their chief characteristic is their dissimilarity to the essential mental diseases.

One of the other familiar signs of tumor is vertigo. As in the case of headaches, this vertigo is usually different from the dizziness and so-called vertigo associated with other conditions. It is not significant unless it comes on in paroxysms, overwhelming the patient to such an extent as to seriously disturb his balance, and, I might say, interfere with his consciousness to a certain extent. Neither should we confuse this vertigo with cerebellar imbalance nor a condition, described by Babinski, known as *asynergia*. *Asynergia*, cerebellar ataxia and various forced movements of the extremities are seemingly all

kindred signs due to disturbance of the organized purposive co-operation of the muscle systems of the body. They are nearly all assignable to lesions in the vermiform process of the cerebellum.

Patients with tumors in the posterior fossa sometimes assume certain positions of the head, and if the chosen position is interfered with, vertigo and indefinable distress is caused. The explanation of this is seemingly that the assumed position is defensive and tends to correct misplacements of the cerebellum or pressure on the third ventricle by the tumor mass. Choked discs and optic neuritis are practically characteristic of brain tumor, as fully 90 per cent. of cases of this eye condition, according to Oppenheim's statistics, are due to intracranial pressure. The great importance of always inspecting the eye fundus is therefore obvious. Not only an actually choked condition of the disc should be taken into consideration, but degrees of engorgement of the veins and the various grades of optic neuro-retinitis approaching extreme papillitis. This sign might be wanting in advanced tumor growth, and its absence therefore means nothing if other symptoms exist. Optic nerve conditions are most apt to develop when the disease is located in the posterior cranial fossa and when the central ganglia are implicated. It is practically always bilateral, though tumors in the frontal lobe are apt to press directly upon the nerve and produce a unilateral choking. I remember seeing this in a most pronounced form in a case under the care of Dr. John B. Elliott, where the right frontal lobe was involved in a sarcomatous mass, as subsequently confirmed by Dr. Elliott at necropsy. The corresponding nerve head was choked while the other was quite normal. Gunn first made this observation, but subsequent writers have ascertained that it does not obtain as an invariable rule. Unilateral fundus symptoms may exist in tumors elsewhere than in the frontal lobe. Slowing of the pulse is another phenomenon occasionally seen in heightened intracranial pressure and is of value in the recognition of tumor in association with other symptoms. Lesion of the pneumogastric nucleus might do this independent of pressure effect.

As regards all general symptoms it should be kept clearly in mind that more or less slow, steady progress for the worse signifies the presence of a tumor. No other condition is likely to do this. On the other hand, the sudden inception

of symptoms, while characteristic of other conditions, might also occur if edema about or hemorrhage into the tumor takes place.

The most frequent forms of brain tumor in the order of their incidence are glioma, solitary tubercle, sarcoma, gumma, carcinoma, fibroma, angioma, lipoma psammoma, osteoma, papilloma, dermoid and degenerative cysts. But it should be borne in mind that practically any form of tumor might occur in the brain. The importance of considering the variety of the given tumor when its presence is recognized is its bearing on the choice of treatment and the prognosis. Glioma, gumma, and sarcoma are peculiarly frequent in adult life, while tubercle—especially of the cerebellum—is almost peculiar to childhood. Tubercle is very rare in adult life. It should be remembered that neoplasms in the brain behave very much the same as when situated elsewhere and the rate of growth, absence or presence of cachexia, etc., might thus give some clue as to their nature. Likewise, should other portions of the body be examined carefully for the presence of malignant and other varieties of growths which are susceptible to metastatic transmission and if such a primary focus is discovered, little doubt need remain as to the nature of the concomitant cerebral growth. Further, when neuro-fibromatous masses are found in the accessible nerve trunks, intracranial disturbances assignable to tumor encroachment should immediately arouse suspicion of similar processes in some one of several of the cranial nerves before their exit from the skull. Such involvement is particularly apt to occur in the auditory and trigeminal nerves. Nævus and angioma especially about the face, head and neck have the same significance. I recall having seen a child with Dr. DeBuys, of New Orleans, in which there was an extensive nævus of the face with cerebral symptoms amounting to hemiparesis from birth. There seemed to be only one interpretation of the latter symptoms—namely, that a similar condition existed on the indicated hemisphere.

It should be remembered that although syphilitic meningo-encephalitis is a frequent disease, pure syphiloma of the true brain substance is comparatively rare and that when it does exist it is often a surgical condition, as medical treatment is not nearly so effective as in syphilitic activity about the rind and covering membranes of the brain, probably because absorptive processes are slow or practically nil in the remotely

deep parts of the brain where the blood and lymph circulation is scant and stagnant. Therefore, in the presence of optic neuritis with danger to the sight and where medical treatment does not induce quick results, palliative surgery especially should be resorted to though the tumor is quite certainly syphilitic.

It rests more with the neurologist to decide upon the operability of cerebral tumors, and in reaching such a decision he is guided by two chief considerations, one of which is that we have just been discussing—the variety of the tumor. This is the lesser consideration as we cannot stand unconditionally on the probable innocence or malignancy of a given tumor, or even certainty on this point. The character of a growth, however, does decide whether or not it is diffuse or circumscribed and susceptible of enucleation. When it is established that the intracranial involvement is a metastatic transmission from a known primary seat elsewhere in the body, surgery is usually inadmissible. Likewise, if it seems probable that multiple tumors exist, surgery is less likely to prove a success, although Oppenheim and several other authors have reported successes in such instances.

A point of some importance in attempting to determine the variety of a tumor when its location has been established is the fact that certain varieties of tumors show a predilection for certain structures; e. g., glioma for the hemisphere, cerebellum and pons (where the glial tissue is predominant), tubercle for the pons, cerebral cortex, etc. Glioma is usually a single tumor, also sarcoma. Carcinoma is nearly always a metastatic condition. Syphilomata and tuberculomata are most frequently multiple.

Rather does the question of operability rest upon the accessibility of the tumor, and this leads us to the consideration of focal diagnosis which, however, we are unable to discuss here as we would be carried beyond the scope of this paper. Although surgical successes in operations upon neoplasms in various other areas of the brain are reported by exceptionally skilled brain surgeons, such as Cushing, Hersley, and Krause, and although our knowledge of this work is still developing with promise of a greater percentage of successes, surgery of the brain is still to a large extent resolved into surgery of the motor area. Tumors in this region produce symptoms quite easy of interpretation. Cortical epilepsy is the determining sign. In fact our knowledge of the function of the motor

zone has been largely acquired through observation of tumors in this region. This area is very accessible and when a removable tumor is encountered here, success is the rule, and surgery has, therefore, gained much credit from this field.

An important general consideration in localization is the point that tumors develop with greatest frequency in the cerebrum, especially the centrum ovale, probably because it merely affords a larger bulk; next the cerebellum, then the pons and central ganglia in the order mentioned. Tumors in the cerebral hemisphere may occupy a silent area and not give rise to any perceptible focal symptom, but when such a process has assumed larger size it is almost certain to encroach directly upon one of the so-called functional areas or exert distant effect thereon. Thus do tumors in the hemispheres often finally exert hemiparetic or hemiplegic influence and in this way betray their location. As a matter of fact the left hemisphere is the one of greatest functional importance and growths on this side betray their localization more quickly. It now seems to be fairly well established that lesions in the left frontal region give rise primarily to mental symptoms of a certain character, such as facetiousness and allied psychic disturbances. Involvement of Broca's area quite regularly produces motor aphasia, even though it is now recognized this is not the sole structure concerned in the production of speech, and although various aphasias are a more comprehensive involvement of the intelligence than was formerly thought. Tumors in the parietal and occipital lobes are less susceptible of focal diagnosis except when certain sensory symptoms obtain, such as astereognosis and involvement of the optic centers and radiations occur.

Only comparatively recently have we known the great psychological importance of the hypophysis, and this has led to special study of its diseases, which are practically always tumor formations. Certain very definite changes in the body metabolism take place when this gland is involved, determined by whether the anterior or posterior lobe is implicated. However, the most certain diagnostic aid we have in this class of tumors is skiagraphy which, by disclosing the enlargement of the sella turcica, an inevitable consequence of expansion of its contents settles the diagnosis.

In conclusion, I have the pleasure to thank Dr. C. W. Duval, Professor of Pathology, Tu-

lane University, for his great kindness in preserving and mounting the specimen which I am showing you to-day. I am also pleased to thank Dr. H. Daspit for his assistance in securing one of the specimens. I am further indebted to Drs. B. L. Thompson, of Jena, La., and J. N. Thomas and R. F. Harrell, of Alexandria, for securing and preserving one of the specimens presented.

1224 *Maison Blanche*.

EXAMINATION OF THE URINE DURING PREGNANCY.*

By WILLIAM W. PENNELL, M. D., Mt. Vernon, Ohio.

The physician has long since recognized the fact that our bodies possess strong powers of resistance to disease, and bends his efforts to evoke that power as he goes his daily round. For well has he also learned that if he can increase that power sufficiently, he can successfully combat disease, even though its origin may not be fully understood. As such, he becomes not master, but a servant of Nature, a willing pupil in her best, most exalted school, heart and hand attuned to the study and investigation of man, her highest product, that he may assist in her watchfulness over him.

The propagation of the species is often attended by danger, and death may lurk in the chamber of birth. Entrance ways are without number, many of them so occasional and indiscoverable that they can only be dealt with by timely interpretation of the phenomena which that entrance produces, and clearing the way for the speedy advancement of the body's natural resistance to disease.

Some of the dangers which threaten the pregnant woman are discoverable through alterations in the composition of the urine, the characteristics of which should be familiar to the physician, and his early translation of these warnings renders his services inestimable.

The pregnant woman whose bodily functions are normal, whose acid-forming and base-forming foods are nicely adjusted, and whose oncoming child is healthy, has no need of fear in her hour of trial from incompetent kidneys. Distention of the abdomen, and pressure-symptoms in the lower extremities have no part in producing harmful conditions; her state being physiological, the organism adjusts itself to requirements, as wisely provided by the Creator,

and she, thus shielded, brings forth in safety.

The pregnant woman whose kidneys are simply sufficient for the unimpregnated state, whose intestinal digestion is impaired, and who, in consequence, suffers with constipation and heavily loaded urine, may become a subject of autointoxication and have her pregnancy attended by danger if not great peril; for here we may have added the growth and development of a vigorous babe, one whose metabolism is active, calling for an ever-increasing eliminating power, which, failing to appear, a dangerous nephritis supervenes and from this the only available escape may be early delivery.

Conditions within the body of the pregnant woman are much the same as before pregnancy occurred. The urine of these women, as in all others, as well as men, represents the balance which results from the end-products of metabolism, its acidity depending upon a larger amount of the acid products. Hence the necessity of a better understanding of the part which diet plays in this end-product, that it may be made less toxic and more readily eliminated.

To these women the physician must be counselor, giving them the best of his genius to convey them safely to the shore of deliverance. He must be acquainted with all the factors which mark that urine has departed from the limits of health, and the bearing of this against the day of child-birth. If that bearing partakes of the hazardous, then measures to meet and avoid the threatened danger are to be instituted without delay.

The percentage of pregnant women whose kidneys are more or less incompetent, or with a tendency thereto, is variously estimated at from 5 to 20 per cent. Having been present at more than fifteen hundred deliveries, most every phase of these renal conditions, except death, has been encountered.

When engaged for an expected confinement, if there was headache after the sixth month of pregnancy, or distress of eyes, or digestive disturbances with constipation, a frequent examination of the urine was demanded. If that betrayed anything of moment, treatment was instituted at once. One such case, at the seventh month, severe and unyielding, was brought to the notice of the late Dr. John E. Russell with the intent of producing a premature delivery. While deliberating as to the method to be pursued, the woman was seized with eclampsia.

*Read before the Knox County, Ohio, Medical Society.

That pregnancy was terminated as quickly as possible in the midst of repeated convulsions and deepening coma, taking little care to control a generous hemorrhage. Recovery was prompt. Another in a very young girl was equally severe; in this, the late Dr. John W. McMillan aided in the premature delivery with recovery. Another, a young woman at the seventh month of pregnancy, developed a marked toxemia with headache, disturbed vision, albuminuria, and pallor, was seen by Dr. F. C. Larimore; this woman, under dieting, laxatives, and continual care, came to normal confinement with nothing more than a transitory bewilderment.

Reverting to the statement that no particular care was taken to control a generous hemorrhage in the first case cited, allow me to add that blood-letting has, with me, a front seat in the treatment of eclampsia. But before that stage arrives, laxatives, and a re-arrangement of the diet, especially the omission of the acid-producing end-products of metabolism, are the chief means of avoiding further complications.

The foregoing being types of personal experience, I will cite the case of a young woman with an extensive eczematous condition and impairment of the cutaneous excretion. In the latter months of her pregnancy, the kidneys became quite incompetent, uremic symptoms manifesting themselves, and a general alarming condition supervening. While she survived a terrible confinement, her condition of skin as a factor in the suffering which she endured to no purpose, made me conclude that the dangers of abortion were preferable, for the child, as usual, did not survive. So, in reckoning our assets to liquidate the liabilities of an expected confinement, not only good kidneys, but a good skin, also, are important, lest the stork let our claim go to protest.

Women who already have albuminous urine, or are known to be diabetic, and who permit themselves to become pregnant, invite the consequences that are almost certain to follow. So also with the epileptic; not so much that the convulsions of epilepsy and pregnancy are similar, but that eclampsia of pregnancy is essentially epileptic, as much as the convulsions of Bright's disease are identical with the eclampsia of pregnancy. Some agency, evidently toxic, is expending its force on the brain, the identity of which is not fully known; but knowing some of the favorable conditions under which it may arise, it seems like folly to bid it defiance.

Besides deficiency of some of the natural constituents, the unnatural components of the urine of pregnant women which most concern the accoucheur are albumin, casts, blood, epithelial cells, sugar, acetone, and diacetic acid. In pregnancy, as under other circumstances, the same agencies affect the urine in the same way; and here let me remark that while albuminuria may be the condition most often found in young women, it is the diabetic state that is oftenest found in those who are older.

In testing urines, I have frequently wished that I might have an agent upon which I could depend to tell me just how much the kidneys are able to accomplish, their total excreting power for solids. Was the specimen offered a true exponent of that power? Was I in possession of every factor that might affect the quality and quantity of its output, or had something been withheld, which, under a cumulative law, would gather sufficient force to do mischief at a moment least expected? I suppose each of us has seen a pregnant woman go into convulsions with little or no albumin in the urine, but after the first convulsion albumin would become abundant, suggesting that some undiscovered factor has been released by the sudden commotion in the nervous centers.

In like manner, we all have seen that very free diaphoresis quite markedly improves the condition of the patient, indicating that some agency of harm has been excreted. Among my patients who were suddenly attacked with convulsions, all had been recently exposed to sudden checking of perspiration; apparently, the skin had been the outlet for some substance which had a determining influence in precipitating an eclamptic state, or, at least, the kidneys were bending under the load which they were bearing and without the power of telling of an exhaustion near at hand.

These cases have led me to believe that if we knew more about the function of the skin as it is related to the function of the kidneys in some pregnant women, we would include an examination of the perspiration with that of the urine, and be better enabled to accomplish good work.

As stated, I have wished for an accurate test of the excreting power of the kidneys. In a crude way I have used methylene blue and asparagus, having all the urine voided into vessels during excretion and endeavoring to estimate the amount of these substances recovered thereby, but the diffusiveness of these agents hindered ac-

curacy; besides, until it is definitely settled as to the nature and composition of the harmful factor, its best preventative and quickest route of elimination in the cases under discussion, it is doubtful if such a substance be found except by accident. Even the phthalein test, so lately brought forward by Rowntree and Geraghty, falls under the same limitations. The so-called nephritis of pregnancy is not a nephritis *per se*, but a state occurring in certain persons in the latter months of pregnancy; in true nephritis, acute or chronic, the phthalein test, in the hands of these gentlemen, gives promise of great value. When we recall that the output of the kidneys is controlled by change in their own circulation, by alterations in the composition of the blood, and by direct stimulation of the renal cells, the wonder is whether a substance can be found which will fully indicate the excreting power of those glands in pregnant women, and not produce the condition which we are seeking to avoid.

We understand that the secretion of urine depends largely upon pressure in the capillaries of the glomeruli, and that this pressure may be secured by raising the energy of the heart and increasing the fluid in the vessels. Here again, the women who have fallen under my charge, and in whom incompetent kidneys developed, were women in whom the heart muscle did not keep adequate pace with the new conditions within the abdomen, and there was a gradual failure of the filtration of solids, and often fluids as well. If now the skin and bowels were kept active, no great harm resulted; but if constipation supervened, or if the skin was suddenly chilled, troublesome symptoms arose. The condition of these patients contraindicated the use of diuretics; such agents might irritate the stomach, and they might antagonize the kidneys as well. But there was a demand for increased heart efficiency, and relief of renal incompetency by copious diaphoresis; such means as these were effective, particularly if the diet was also corrected.

The kidneys, like their capsules, are charged with an internal secretion which has a depressing effect on the circulation. In this may lie an enfeeblement of renal tension, since its composition is modified by the activity of the glands themselves.

Time being necessary to avert the dangers of kidney derangements in pregnancy, suspected

cases should have the urine examined often—say, once a week; oftener when necessary.

The examination shows: 1. Normal urine. 2. While normal, some constituents are deficient in amount. 3. Contains large quantities of albumin, perhaps pus cells with indican; the patient complains of headache and vomiting, and there is edema. 4. There are traces of albumin with casts, acetone, and, quite often, diacetic acid, and the patient complains of nausea, vomiting, which may be severe, edema, duodenal disturbances, impaired vision, and vertigo; the next scene is eclampsia, coma deepening with renewed convulsions, albuminuria increases, and pus cells appear. Before convulsions the duodenal disturbances might be misleading; but the acetone bodies should warn us of danger before the occurrence of convulsions tells us how far the patient has swung from safety. 5. Contains sugar; specific gravity may be high; patient complains of thirst, frequent urination of large quantities of urine, and, may be, of genital irritation. Such cases demand an immediate revision of duodenal digestion. A patient of mine with this condition and this treatment did very well for a time, but later developed a nephritis; a premature delivery restored a normal balance.

Tube-casts should be examined when quite fresh, or within an hour after passing, since the ferments of the urine will digest them within that time.

Since certain steps of metabolism are concerned in the production of acidosis, that process should be investigated in every case where the urine requires examination; and, while we are yet ignorant of some things that disturb or modify nutrition, we need a better knowledge of the source, chemistry, and physiology of the acetone bodies before we can fully comprehend them. But their features are known, and some of their properties. Being of greater toxicity than methyl alcohol, it seems to be generally understood that they arise in consequence of faulty oxidation of fat and fatty acids in intestinal digestion. From thence they cut like a two-edged sword, toward the liver, preparing the way for diabetic phenomena; or, finding exit through the lungs or the kidneys, the hurried respiration of acidosis and the toxic coma of renal incompetency tell us of their great power for harm.

True, small quantities of acetone, diacetic acid, and oxybutyric acids may attend normal

metabolism; but if their appearance in the urine is fairly constant, we are bound to infer that the fat-splitting activity of the body is at fault, or that there is a disproportion between the acid-producing and base-producing foods taken, and a toxemia may be looked for with fair degree of certainty. In short, under the circumstances, any lowering of the bodily resistance may be followed by an invasion of some sort.

Edema of the face and upper extremities in pregnancy, whether renal or extrarenal, should be investigated and, if possible, remedied. If renal, an examination of the urine will disclose the fact; besides, there will be the corroborating symptoms of headache, drowsiness, and exhausting sleep. If extrarenal it lies without the limits of this paper, but quite possibly is as closely connected with some peripheral vasomotor modification or disturbance as is the renal. That either is caused by anuria is not probable. This misty point in our knowledge concerning edemas in pregnancy will be made clear at some time; then we shall see that they all have a similar origin, that the transudation of fluids into the areola tissue in the upper part of the body is due to a vascular stasis induced by a substance or condition originating in the kidneys, or their capsules, and serves as a relief to the tension in those vessels.

Not every woman with albuminous urine becomes eclamptic; but every eclamptic woman becomes albuminuric; so, the suggestion to guard well the pregnant woman whose kidneys are defective should be heeded. This vigilance should be unrelaxing from the seventh to the ninth month. Albumin in the urine as a lonely symptom may be of small consequence; the state known as the nephritis of pregnancy is what we wish to avoid. And thrice armed is he who regards unmistakable albuminuria as one bold member of a hidden band of enemies seeking an opportune moment to appear in full force.

THE PHYSICIAN DISSECTED.*

By R. A. WALKER, M. D., West Monterey, Penn.

There is no nobler calling than that of the physician. To be the student and healer of human suffering and pain places a sincere man in a position of the broadest usefulness. Its trials and difficulties ennoble him, and its triumphs exalt him into the proud place of a public benefactor.

As a rule the medical profession measures up to the demands of its work; men of broad minds, sympathetic understanding of human suffering, and an honest desire to relieve human pain are found by the score in their ranks. The presence of the charlatan and the quack is no more tolerated by the profession itself than the public when once the true character of the impostor is discovered. It can also be affirmed that in dealing with disease and in fighting individual cases of suffering and need, the physician is normally the most hopeful of men; when the keen instincts of his calling demand that a patient shall be buoyed up by hope and inspired by strong resolution, the physician can by a cheerful word infuse courage to the despondent invalid.

In the following pages we propose to consider some of the exalted positions that a physician should occupy in the circle in which he moves and to the world at large, in order that he may measure up to the stature of that *ideal physician*, of which the writers on "Higher Medical Criticism" prate and of which the ordinary practitioner knows but little; and incidentally I shall also touch lightly upon the follies of which some of us, I fear, must plead guilty. The ideal physician is a member of a learned guild. He should be above the tricks and petty jealousies of trade. True, he lives by his profession, but he who practices for *gain alone* is only a hireling and *not* a true shepherd of the sheep. If you would attain to this professional ideal, you must be a constant student, keeping abreast of that scientific progress of which, in your community, you must be the exponent. You cannot afford to be satisfied with the knowledge you now possess, but must read, digest, and assimilate the best in the up-to-date literature of your profession, or you will be left behind in this day of rapid transit.

There is something intrinsically bound up with the healing art that makes a man better and nobler for being in it. The men who are weeded out of the profession yearly, who degenerate into quackery or take to some less responsible calling, are those who fail to come up to the world's demands. Perhaps there are many yet who had best change their calling.

The physician should make himself felt in the community as a *moral* force no less than as a practitioner of medicine. He should be distinctly a power there, and whether for good or evil, a power he will be. No one with the education, the knowledge, the opportunity of the phy-

*Read before a meeting of the Clarion County (Penn.) Medical Society.

sician can help being a potent factor in the life and affairs of his community. It then is all the more needful that he be a man of sterling moral worth; then also if there is one thing more than another in the general make up of a physician needful, it is that he be a gentleman. All cannot be foremost surgeons or scientists. And it is reserved for but a comparative few to become real well-to-do in the matter of worldly means, but every man can so adjust his life and method of conduct as to justify the application of the term *gentleman* to him, and, if permeated with the desire to be of use in the upbuilding of his community, and the uplifting of his fellow man, can be a power in the regeneration of any locality in which he locates. The magnificent possibilities for a physician on this line of thought are practically unlimited, as unlimited as the sands of the sea.

To discuss this phase of his life would be a sermon, and we should choose for our text, "Am I my brother's keeper?" There is no sphere in life in which the physician cannot be a power for either good or evil with his patients, for does he not get nearer to their inmost thoughts than perhaps any other individual? He sees them as no other sees them, for sickness strips them of all shams and conventionalities, of all power to dissemble, and in the moment of their supreme agony he looks figuratively speaking into their very soul.

The assertion is sometimes heard that "doctors are born, not made." This trite saying does not have as much truth in it as some people think. It is no doubt true that many good farmers and mechanics are lost to the world in trying to make doctors out of them, but we believe the main essential in making a success out of the practice of medicine is good judgment and the independent exercise of it. The greatest weakness that we observe in the mass of the medical profession to-day is the deplorable lack of judgment. It is this deficiency that causes the wild opinions promulgated in practice.

Because some physician has had a little better education or more ample opportunities than you, or perchance has written a book, is no reason why you should dwarf your intellect into blind subservience to his opinions and not assert your own good judgment. While specialism undoubtedly makes men very efficient in their chosen fields, yet it does not make them infallible. What is needed among the profession at large is less blind dependence upon authorities

and more independent thought among the individual members, less thoughtless devouring and belief in anything new in medicine, and more good judgment regarding what we already know. Do not understand me to condemn specialists individually, or as a class. We do not wish to underrate those who have given application and talent to their calling so as to be efficient, but we make a plea for a more all-round effort in the exercise of personal talents and to combat that blind instinct to follow recklessly the opinions of others, which often results in bringing the profession into ridicule.

Many doctors let their business run in ruts and when they have exhausted the resources of their immediate stock of medical knowledge, rest upon their oars with the comforting conviction that they have reached the limit of medical science and nothing more can be done. It seems never to occur to them that refractory and desperate cases offer a most appropriate field for experimental therapeutics. Here is the opportunity for breaking new ground, for testing therapeutic theories, for increasing our knowledge of drug powers. The men who have originality and self-reliance enough to rise to the occasion are the ones who make all the progress for us. Get out of the rut, read, think, experiment independently,—try all things; prove all things and hold fast to that which is good.

While the physician's opinions are sought on medical subjects, yet he is also invited sometimes to give his opinion on secular matters. But there is a sentiment among the profession, and voiced by the laity too, that medical men should not engage in public affairs; this is a mistake; the practice of medicine does not disqualify a man from the performance of public duties, and the reticence and modesty on the part of the profession has lessened our influence in public matters. The medical profession, if united, active, and aggressive as some other callings, could accomplish wonderful results and reforms, and at the same time enhance measures for its own benefit and protection. Our profession, the members of which have the entrée to every family, could by a word wield an influence that would be irresistible.

The position of our profession is not as prominent in government affairs as it should be, and our claims are constantly ignored. This is our own fault to a great extent, because we have not used the power we hold in our hands. The professional politician neither fears nor re-

spects us as a profession, because we are not united. We often oppose each other in matters that pertain to our common good, thereby nullifying our influence. In recent years, doctors in America are giving more attention to public affairs, and in some States we find doctors serving as Governors, while in many cities they are elected Mayor or Controller, and to many other positions.

But the laity cries, "serve humanity," and let politics and other kindred affairs alone. We believe that by interesting ourselves in public affairs we are "serving humanity."

The great Virchow, during the forty-two years active service, was instrumental in revolutionizing the sanitary laws of the city of Berlin. Through the establishment of drainage, admirable water works and garbage furnaces, he did a world of good to humanity by political influence rightly used. Especially is the voice and influence of physicians in the deliberations of educational bodies too seldom heard. In school matters his presence and advice should be of immediate benefit. Too few physicians appreciate the fact that it is their duty to take a deep interest in the welfare of the public school. School boards and superintendents of educational institutions are awakening to the fact that they need the counsel and advice of physicians, not alone in combating contagious diseases, but in the construction and arrangement of their school buildings, proper ventilation, correct hygiene, proper manner of seating so rays of light may be admitted without resulting in injury to the eyesight, etc. For are we not fast becoming a nation of spectacle wearers from this cause alone? Who, so well knows the dangers that hedge about school life as the physician? How much he could tell teachers about properly grading the children physically, as well as mentally! How to manage properly the precocious, the nervous, the hypersensitive and the degenerate—all under the present arrangement herded together under the guidance of an innocent, and I might say oftentimes an ignorant teacher, ignorant of the most vital points in the proper management of schools. Physicians have knowledge of these things and should be interested and consulted in reference thereto.

To again return to the consideration of the physician himself, let us ask, what are some of the necessary attributes for a successful physician? There are, in our opinion, more required of a physician than any other professional man.

First of all, he should have good health, for without it he can do little, required as he is to withstand the rigors of cold, wet, and heat throughout all seasons of the year; tact to use the knowledge he possesses; promptness in attending calls; sympathy, for the physician who has not sympathy for suffering humanity can never endear himself to his patients. Then add to this cheerfulness, charity, and, if carefully handled, church, lodge and political affiliation can be used as a lever to advantage, but, without tact, these three graces may work to his detriment, if not his destruction.

Of some of the hindrances to success, at the beginning of a young man's life, to my mind, wealth is the greatest hindrance; for in many it begets laziness, carelessness, and a tendency to shirk work in unpleasant weather, because there is no sense of compulsion on his part. Poverty, while a hindrance, may be overcome by grit, energy, and good management. Another great hindrance to gaining and holding the confidence of your patrons is what I call in plain terms "blowing your own horn" *too* much and *too* strong.

The physician who is always on the go night and day when all other doctors in the community are comparatively idle, who passes through epidemics of malignant diphtheria and scarlet fever and cures *every* case, the doctor that treats *hundreds* of cases of pneumonia and typhoid fever and *never* loses a patient, is generally the doctor, if the *truth* is told, that is incapable of making a correct diagnosis of either disease. Such boasting is, to say the least, in bad taste, and the best people lose respect for the doctor. The too frequent use of technical terms in conversing with the laity can be overdone, and while you may think you are impressing them with your great wisdom, in some cases it creates disgust.

Any man can be an imitator or follower, but it requires a man of thought to beget new ideas. No profession is so given to following *fads* or new ideas before they are properly tested as the medical profession, and I believe the advice we used to have given us in the old poetic couplet still stands good in this case:

"Be not the first by whom the new is tried,
Nor yet the last to cast the old aside."

Before you take up and sound the praise of something new and startling, be sure that it has no concealed plot to subordinate your preroga-

tives, or that you are not being made the advertising medium for some designing manufacturer.

I now desire to discuss a few points which, to us as country physicians, seem of vital importance, and the opinions I express are my own and I hope will be taken as such, nor shall I consider them binding on anyone of you here present.

The first proposition is, should a physician dispense his own medicine? I say, *yes*, because private dispensing leads to a more exact and intimate knowledge of drug action; it prevents patients from finding out what they are taking; it prevents substitution and refilling of prescriptions by druggists. It gives you better control over your patients; they get the exact medicine you want them to have; they see you prepare it; they know no clerk has blundered in filling the prescription; hence, this gives them confidence that it will do them good. (And, by way of digression, let me say, while we do not believe in *faith* cure pure and simple, yet we must all acknowledge faith in the physician, on the part of the patient, is no mean attribute, nor should it be overlooked). The patient must come back, for he cannot get the prescription filled elsewhere. In this way, you keep him under your eye longer. When patients have a prescription, they often give it to a neighbor who is "affected exactly as they were," and it does duty for them many times, where the physician should have had a fee out of it.

The next question is, should the physician treat the clergy free? The doctor's time, service, and medicine is his stock in trade. Why, then, should he be singled out to gratuitously perform service and furnish material for those of another profession? There may be exceptions to this rule, where the minister is retired from active service, or is working for the good of his fellow man without hope of reward; to such a class no profession is more willing to extend aid than the medical profession. But the average net income of the minister compares favorably with that of the doctor, and exceeds that of many of his parishioners who count on paying their doctor's bill, as well as their grocery and coal bills. Do the dry goods merchant or groceryman take their goods off the shelf and give them to the clergy free? Yet this is just what the medical profession does when they treat the clergy free. Besides doing this, they are ex-

pected and *do* pay their share towards the minister's salary, wiping out church debts and other expenses of the church.

I believe the practice lessens the respect of the clergy for the medical profession, for whose name do we find more frequently to the end of an endorsement of some patent nostrum than his? Verily, "the laborer is worthy of his hire;" pay your share towards the support of the minister and let him do the same towards you.

The subject of changing location, to my mind, does not require a very great amount of discussion; ministers frequently find that their field of usefulness is enlarged by removing to a new locality, but a change of location is often not productive of good results to a physician. Especially after they have reached middle life, many physicians, for various reasons, have found by sad experience that a change from a country or small town practice to the city has been a serious mistake on their part. With the increase of free dispensaries and other eleemosynary institutions, many physicians in the cities eke out a precarious livelihood compared with the earnings of the ordinary country doctor.

Doctors often do not practice what they preach; they dilate on the necessity of their patients taking a vacation, they expatiate very volubly on the advantages and benefits to be derived, and then stay at home themselves and drive along in the same old rut till incurable disease or perhaps death cuts them down when they should be at their best. Every physician who has worked regularly and conscientiously can afford to take a vacation if he is willing. A vacation does not necessarily mean a long expensive trip by rail or steamer, with the accompanying expense for fashionable clothes and hotel bills. Go out in the woods or on a farm; live with some farmer where you will get good clean, well-cooked food and fresh vegetables, work enough to keep your blood circulating, forget you are a doctor or ever knew any medicine, forget age or that you were ever weary or worried. It will pay you in more ways than one; you will soon get a good appetite, sleep good and feel good, and at the end of your vacation come back to your work with renewed vigor and strength. I assure you your patrons will get along without you 'some way, will be correspondingly glad to see you back, and will respect you for trying to take care of yourself. Wear out

your life for the community, and it will not add one foot to your monument, nor keep your memory from forgetfulness a single year longer.

Should we prescribe proprietary preparations? I am not prepared to indiscriminately condemn them wholesale; true, a physician should know what he is prescribing and he should prescribe according to the needs of each particular case. But some proprietaries are better prescriptions than some doctors can write, and better from a pharmaceutical point of view than some druggists can compound. We admire the doctor who is self-reliant and can think for himself, but until all doctors do so, there will be a place in medicine for proprietary preparations.

Have we any "cranks" in the medical profession? Verily, I say unto you, Yes, *lots* of them, and of all the different species of cranks the *medical crank* is the worst. If a discovery is made which appears as if it would help lighten the troubles of this world, his hand is raised in opposition to its adoption; he opposes the use of antitoxins of all kinds on the grounds of cruelty to dumb animals; he fights vaccination and quotes scripture to prove his assertions. In fact, he is a sprag in the wheels of medical progress, yet he has his use in the world, for he acts as a powerful stimulant to others; his constant determination to prove that he is *always* right pricks his opponents to greater effort in order to show him that this is an age of progress and that there is no place in it for the medical crank.

Has it ever occurred to you, doctor, that you are a solitary worker? Most all kinds of business can be made profitable according to the capital invested and the number of subordinates employed. Not so in medicine; the income is the labor of one person; it cannot be increased by the aid of capital. Years must be spent in attaining the knowledge and skill necessary to the wise treatment of the various diseases, yet at death there is nothing left to be inherited by the family.

No other professional gentleman is compelled to assume so many responsibilities; entrusted as he is with the *lives* of his patrons, he must at all times be prepared for any emergency that may arise. Others may be appalled or terror stricken at some terrible accident or calamity, yet the doctor is expected to know no fear, but to be brave, tender, and equal to all occasions.

The minister, the lawyer, the statesman, are

given timely notice of their expected work, but the physician must be ever ready. Irregular meals and hours of sleep, both of which tend to make the average life of the physician shorter than that of other professional men, *again* remind us that our professional services are held in too light esteem by many of our patrons, and are deserving of larger remuneration.

Have you ever thought that every critical case he takes in charge is a problem, complex in its nature, which he must solve? When a patient is hovering between life and death, do you imagine he is taking life easy when sleeplessly, he is searching his books to find perchance some remedy to assist him in his dilemma? Every emotion of pity is aroused; his heart and brain are engaged, and he extends more vitality in this hour than a placid calm life uses up in a year.

But this kind of life *tells* on the physician. Unconsciously his reserve force is being exhausted link by link; he is slipping his anchor, and one day, when he has grown more useful than he ever was before, his anchor is apeak; one round more, it lifts, and he sails away, *never* to return. He has lived his life out; he has expended all that he had of strength or emotion in months where it should have lasted years,—lived it amid suffering and death, too often surrounded by the added woes of poverty and crime, a true minister of mercy oftener than he knew.

THE EARLY DIAGNOSIS OF TUBERCULOSIS.*

By JNO. J. LLOYD, JR., M. D., Catawba Sanatorium, Va.

One death in every seven is from tuberculosis, and it is estimated that there are 30,000 cases of pulmonary tuberculosis in the State at present, and 5,000 deaths annually; therefore, if we are not already interested in the diagnosis and treatment of this disease, it is high time that we become awakened to the fact that we have a live issue to deal with.

If we had an equal number of cases of typhoid or smallpox, would we not take vigorous steps to suppress it? And yet we have made only a very slight beginning toward suppressing this disease, which is one of the oldest enemies of the race, and the one which produces a higher death roll annually than any other.

Tuberculosis claims its victims in the prime of life, just at the time when their usefulness is at its height, and the toll, if reckoned in dollars,

*Read before the Southwest Virginia Medical Society, Pulaski, Va., May 27, 1912.

would mount up in the millions annually for this State alone. It is a generally accepted fact that every case of tuberculosis infects at least one other individual, and the majority of cases infect more than one.

Much of this useless waste can be prevented and tuberculosis added to the list of diseases which have been partially conquered. Early diagnosis is one of the surest means toward this end, as 60 to 70 per cent. of early cases can be restored to health and full earning capacity.

By early diagnosis we mean recognition of the disease before the process has made extensive invasion of the tissues, before constitutional symptoms are marked and before complications have arisen. The sputum may or may not contain bacilli, but it is greatly to be desired that the diagnosis be made before bacilli are present.

To diagnose the disease early requires careful, painstaking work on the part of the busy family physician, for through his hands pass nearly all these cases, and upon his diagnosis the future welfare of his patient depends.

There were discharged from Catawba Sanatorium for the nine months ending September 30, 1911, 216 cases, and of these only 13.4 per cent. were incipient. This small per cent. is partly due to the fact that people are anxious to believe they have something else, and will not apply for admission until the disease is unmistakable, but it is also due to the fact that only a small per cent. of cases are diagnosed early.

Early diagnosis in many cases is not an easy matter, but it can be done, and if we will only take the time and trouble we can all do so in the large majority of cases.

The picture which should always arouse our suspicion is the one we are accustomed to call "run down" and which so often responds to a tonic, change of scene and rest.

The patient complains to us of lack of usual energy or tiring after accustomed work or exercise. There may be shortness of breath or palpitation of the heart on exertion. Perhaps there is loss of a few pounds in weight and the appetite is poor with indigestion of some sort present. At times there is pain in the chest, most especially a dull, tired ache at the root of neck or between shoulder-blades.

Cough is usually present, but we often have to obtain history of cough from relatives as the patient is at times unconscious of it. If we add to this present history the past history of recurrent grip, typhoid, pleurisy, frequent or pro-

tracted colds, we have the diagnosis almost made.

A hemorrhage may be safely regarded as tuberculous, unless we can definitely and positively attribute it to grip, pneumonia, uncompensated heart disease or hemophilia. A slight hemorrhage early in the disease should be a blessing to the patient, for they will readily accept the diagnosis if it be made at this time.

The symptoms are not severe, nor is the patient's appearance alarming at this time, but the group of symptoms enumerated above should place us on the right track, and, if in addition, we find the pulse rapid (90-100) and the temperature elevated even a few tenths of a degree, we should consider it tuberculosis.

The findings on physical examination in the early stage of the disease are not usually very far from the normal. The process usually begins in one or the other apex, the right slightly oftener than the left. Especial attention should be directed to the supra- and infra-clavicular regions and the supra-spinous fossæ.

Inspection may show slight loss of flesh, and when the patient takes a full breath one side of the chest may not move as much or as promptly as the other—i. e., it lags.

Light percussion may show slight dullness, but dullness is generally not present until later.

Auscultation shows the breath sounds to be feeble, i. e., diminished in intensity or they may be entirely suppressed over a small area.

Inspiration may be wavy or jerky, and expiration may be somewhat prolonged or blowing. When inspiration is harsh and expiration prolonged we have what is called harsh respiration; this is not properly an early sign, but occasionally we do see it.

Rales are very suspicious if constant over a small area, and especially so if they are present after a cough or are elicited by a quick inspiration following a cough at the end of a full expiration.

No examination for tuberculosis is complete until the sputum, if any can be obtained, is examined—finding the bacilli is proof positive.

If we will bear in mind that the disease is a very slowly progressive one, that it requires several months of activity before symptoms develop, and that considerable lung tissue must be involved before it is discoverable by physical signs, we will be more ready to diagnose it on symptoms. Almost all early diagnoses are made chiefly on symptoms.

A positive tuberculin reaction is only one more symptom to add to what we have; it is not infallible and must be interpreted just as any other symptom. An X-ray examination is also a confirmatory method, but is no more an infallible diagnostic agent than is tuberculin.

We should also bear in mind that if a tuberculosis is located in the bronchial glands or is deeply seated in the lung, it may be in a more or less advanced stage, and give no physical signs of its presence. What we hear upon auscultation is the outer inch of the lung tissue, and anything lying deeper than this, if overlain by normal lung, may give no evidence of its presence upon examination.

The disease may be present and active, and yet the chest findings on physical examination be normal as above. Often when we make early diagnoses on symptoms alone, or symptoms with slight chest findings, the patient will improve promptly and soon be apparently as well as ever. This is not surprising, for it is the nature of the disease—relapse followed by improvement until the defensive elements of the patient's body are used up, and these are to be had only in limited quantity; then comes a breakdown. If a case is diagnosed early, that patient is given the best possible guarantee for recovery, while later on there may be no fight left in him, and it is only a matter of a few months before the end.

When the diagnosis is made is the proper time to tell the patient all about it, what it means to him for the future and the possibility of infecting others. If the patient does not fully understand and appreciate his condition, there is no hope for him to take care of himself, and he is a very grave danger to his associates.

When we have under our care a consumptive, it is well to watch the other members of the family for signs of the trouble, for that is where we are most likely to get cases—from contact. But let us remember that because we can trace no heredity or opportunity for infection, the disease may just as surely be present.

The hardest diagnosis in medicine to make is a negative diagnosis of tuberculosis, for it may be present and produce such slight symptoms that the patient is not aware of being sick; later on, when he breaks down and takes the cure, he can look back and see he has not felt well for months.

The laity is beginning to expect early diagnosis, for they are realizing its importance, and

this fact alone should put us all on our mettle so that we will deliver the goods in the majority of cases coming under our care.

A PLEA FOR THOROUGH AND SYSTEMATIC STUDY OF THE MATERIA MEDICA AND THERAPEUTICS.

By FINLEY ELLINGWOOD, M. D., Chicago, Ill.,
Editor of Ellingwood's Therapeutist.

It is a generally accepted fact among those who pay attention to the development of the study of the curriculum demanded of medical students, that there is altogether too great neglect, at the present time, of the study of materia medica, and that the study that is demanded, is cursory, desultory and almost entirely devoid of attraction to the student.

Physicians themselves, being asked to take an introspective view of their own knowledge of materia medica, if they are honest, in the majority of the cases, are overwhelmed with their own ignorance of the detail of specific or exact action of drugs. Many of them blame their *alma mater* and those that should lead in medical knowledge for this ignorance, but I am inclined to think the individual himself is much to blame as well.

The total profession has made marvellous advancement in the last three or four decades in the study of bacteriology, pathology, microscopy, in the development of laboratory methods of drug study, in the study of preventive medicine and of surgery, but in doing this the individual has spent so little time upon the all-important subject of materia medica and therapeutics, that he actually, in many particulars, know less of drug action to-day than he did thirty years ago. I say this advisedly and regretfully, but the individual physician is not as much a student of materia medica to-day as he was in the past, because the study then of materia medica was accounted the most important branch. It was not overshadowed by surgery and the so-called scientific branches. To the physician then, the all-important knowledge was to know *what medicine* to give to his patient when ill that would *cure*.

The study of this subject is difficult. It demands concentration; it demands persistency, and unless applied to the immediate needs of the patient, unless we can make immediate application of the knowledge acquired, it is startlingly devoid of interest. It is not exact, and every

student delights in exactness. But why is it not exact? It is because our total knowledge of the subject, in the first place, is imperfect; secondly, the study is not conducted in systematic, precise, scientific lines. It is not properly classified or arranged; the study is not made consistent with an exact principle of drug action.

My object in writing this paper is to attract the attention of readers to a renewed study of the action of drugs, to the study of drugs in line with a principle at once exact, rational and attractive, and to encourage persistence in this study until the student shall have acquired a knowledge and an experience that in itself will stimulate him to a most enjoyable persistence in the study, and will enable him to say that there is in this study, when correctly conducted, a fascination that no other study possesses.

I have been trying to teach for many years the following facts, that the reason disease is not cured is because we *have not the knowledge of* drug action necessary with which to cure it, or, conversely—

That failure to cure disease is due to lack of knowledge;

That disease will ultimately be subdued, in whole or in part, by remedial measures;

That doubt concerning drug action is a deadly foe to therapeutic progress;

That the study of the clinical action of the single drug *is the only* true method of drug study;

That each drug acts directly and invariably upon one or more exact conditions of disease, and, being so studied and known, an exact reliable knowledge of drug action is obtained;

That when this knowledge is perfected, we will not only prescribe for known conditions of disease with immediate success, but we can prescribe with equal success for conditions we have not previously met.

We begin our study then with a perfect analytical study of each disease, in order to determine those conditions which are involved in the patient we are studying at this time. We determine a knowledge of these conditions, and an ability to recognize them whenever we find them, in whatever disease they may occur. We then determine what single remedy will always meet each one of those conditions and correct it. Here is the whole thing in a nut shell, and really this is all there is to it, as this includes a thorough knowledge of the remedies, also, with

reference to their action upon exact conditions, as stated above.

I trust each reader will read and re-read these statements until he has them clearly impressed upon his mind, and will weigh them fully with reference to his own methods of studying the action of drugs, that we may compare the beauty of this method when completed with any other known method.

It must be accepted at once that *this is the only correct method of drug study*. If we prescribe compounds because the manufacturer has advised them for certain conditions, we acquire no precise knowledge of the action of the constituents of that compound, and our prescribing is haphazard, uncertain and largely guess work. If we should by close study, know the invariable therapeutic properties of each one of the constituents of that compound, we are enabled to determine whether the total compound is applicable in the case required, or whether one or two of its constituents would not work even better, or whether it is not totally inapplicable.

But if we understand drug action, as above specified, we will seldom, if ever, find an excuse for prescribing a compound, especially one prepared for general conditions, but we will invariably find demands in the condition present in the patient we are prescribing for, for one, two or three single remedies of which we feel confident, and will thus promptly make a perfect adjustment to the case in hand.

This is the course we adopt in every patient, and this is the course we will adopt when we have learned our drugs, and studied specific conditions as above stated; and when we adopt this course, the results obtained will be so satisfactory, the observations made will be so rational and consistent, and the confidence we will acquire in the knowledge we have so obtained will be so much in advance of any knowledge previously acquired, that the real fascination of this method will impress itself upon us, and in the future we will find ourselves willing students of the specific method of drug application.

Applying this method to the study of well-known drugs, every student is surprised at the amount of knowledge thus obtained, concerning the action of some very common remedies—knowledge of actions he had no idea could be present in that drug, materially broadening the field of the drug and increasing its value to the prescriber, in some cases a thousand fold.

Furthermore, those who have been developing this method have made observations of a great many drugs that are seldom mentioned by the principal medical journals, or prescribed by the profession at large, and which are but little known, or are spoken of disparagingly by the Committee of Pharmacy and Chemistry of the A. M. A., but which possess values, when studied in this line, actually superior to very many drugs, upon which volumes have been written, as standard drugs, and as those which could not be done without.

Many have learned something in an empirical or a general way concerning the action of digitalis or aconite, strophanthus, or quinine, ergot, nux vomica, belladonna, ipecac, gelsemium, turpentine or jaborandi as common remedies, but it is certain that studying these remedies from a specific standpoint, we have an entirely different study, and one which brings out beauties not before anticipated. Added to this, every individual should study from this standpoint echinacea, baptisia, berberis, hamamelis, viburnum, mitchella, collinsonia, dioscorea, colocynth, iris, chionanthus, podophyllum, sanguinaria, asclepias, sticta, euphrasia, lobelia, apocynum, cactus, crataegus, calabarbean, pulsatilla, hyoscyamus, rhus tox, and perhaps one hundred and fifty others that could be mentioned, and he would be surprised beyond measure at the knowledge that would develop, and in the ability he would have in the knowledge acquired to cope with disease in a satisfactory manner, far exceeding anything he had ever hoped or known.

It is to encourage a study, as I have said, in those lines of both the old and new materia medica, that I am writing this paper. It is to disparage the common use of compounds and general pharmaceuticals, used with the hope only that they will cure the conditions for which they are prescribed, when a *knowledge* of exact drug action will enable the prescriber to know without doubt what will cure his patient, will make him able to cure the condition with positiveness and assurance, thus establishing the confidence of his patrons, first, in his ability, and secondly, which is indeed most important, to establish their confidence in the fact that disease *can be cured* with the measures accessible to the physician.

Ignorance of drug action, or doubt—therapeutic nihilism—has directly undermined the confidence of the people, until the drugless methods of cure are now sought for and adopted

by at least thirty per cent. of the population of the United States until the surgeon is in demand only, to any great extent. Faith in these drugless methods cannot endure; they are auxiliary only. Let us at once re-establish the faith of the masses in correct drug action.

While I thus urge this method upon the individual physician, this knowledge cannot be acquired at once; to become an efficient prescriber one must be drilled in this study through a long period. I think it is necessary also that he forget much of the desultory knowledge, many of the unsystematic, empirical facts he has previously known.

To have this method properly woven in with the web and woof of his total education, it should be begun with his first day's teaching in college, and should be continued with every day's instruction during the entire course. It is a deplorable fact that so little materia medica and therapeutics is systematically, clinically and thus practically taught in any of the colleges, and I fear there will not be much improvement in this course, until the individual practitioner, and the profession as a body, *persistently insist* upon a more thorough teaching of this all-important branch.

Clinical Reports

MYXEDEMA—REPORT OF CASE.

By FREDK. M. HORSLEY, M. D., Lovington, Va.

Having a case of interest, I wish to report the condition because it shows the result of lessened, or absent thyroid secretion continuing for many months untreated, and how far the administration of thyroid corrected the condition.

Being untreated for a period of more than two years, the case developed a complex condition which obscured the real cause of trouble when seen at my first visit.

On January 21, 1912, I was called to see a woman who had been unconscious for three days. From her husband I learned that she had been unwell for about two and a half years, but previous to this her health was good. During the time of her ill health she had a doctor only occasionally and had not been confined to her bed until recently. Her husband said that her mind began to fail last November, and, growing worse in December, a physician was called. Her family physician had died and

another doctor was called. He did not return after his first visit. A month from this time I was asked to see the patient, and learned from her husband, an intelligent negro, that she had a good family history, was mother of a large family in good health, and that she was fifty years old. Previous to her ill health she was said to have been a hard worker, and had no habits injurious to health.

Attention was first attracted to her variance from health by an increased appetite and abnormal thirst. She fattened considerably, passed large quantities of urine, had headache, alopecia, swelling about the body that suddenly came and went; later there was impaired sight, air hunger, and control of bladder and bowels was partially lost. These two latter symptoms begun a few days before I saw the case. No history of boils, or itching of skin was given. This information I did not secure at my first trip, however, and not knowing the reliability of the information given, I could not make out the case until after several visits.

At first she appeared to be a large, fat woman, unconscious, lying upon her back, eyelids twitching, but eyes opened and showing the pupils dilated, without reaction to light. Tremors at times passed over parts of her body. Her pulse was feeble, slow and felt with difficulty at the wrist. Upon prizing the mouth open, her tongue was dry, coated and breath foul. I made out no enlargement nor abnormality of her organs, but the fat, especially over the abdomen lay loose and fluffy. One spot over the spine between the shoulders was sensitive to touch, so that it made her squirm when pressed upon. A later examination of sensation found it present in all parts, motor power not lacking, except the act of speech seemed slow and difficult of delivery, though this appeared to be present from her mental condition. No ataxia, nor irregularity of gait was shown when she was able to walk. Her pupils later acted only slightly to accommodation and not at all to light. Knee reflexes were somewhat exaggerated. When present the first time, she had a convulsion and apparently was dying, though she recovered from the attack.

Ignorant of the condition and thinking that the case would not recover, I did not offer to take charge of it, nor return; but thinking there might possibly be some benefit derived from a cathartic, I administered one.

In a few days, the woman was still living and another doctor was called. He too was puzzled to know the nature of the trouble, and still later—about a week from my former call—we were asked to see the case together. Upon this visit we found her as she was a week previous. We could come to no decision as to the condition, but agreed that I should care for the case and try to work it out, reporting the results or developments to my consultant, as we both had become much interested in the matter. It was not until later that I obtained some of the information above given, but at this time, from what was known, my conclusion was that the thyroid gland possibly caused her trouble by its lack of functioning power. Twice repeating a cholagogue cathartic, and administering phosphate of soda daily for a week improved the case greatly, so that consciousness returned. I then found that she was blind, and secured other points of information not previously known. As I had been told before, I found her mental condition much impaired. Up to this time her urine had not been examined, because the loss of bladder control had made it impossible for the attendant to save a specimen for me.

At this stage I began to put her on a milk diet principally, with some oatmeal, and gave five grain tablets of thyroid gland three times a day. In a few days the power of bladder control was established and I made an examination of her urine, but found it normal. At this time, headache, abnormal thirst and other symptoms had disappeared, except the impaired vision and intellect. Then I stopped the treatment and dieting for nine days, but at the end of that time her former troubles came back.

Within this period of cessation from treatment I found upon testing her urine that it contained sugar, which later disappeared with the other symptoms (except deteriorated mind and faulty vision), upon continued treatment. Her sight improved somewhat, but it remains imperfect and her mental state remains unimproved.

For the past few months, I would give only half the amount of thyroid for about ten days and then leave it off for four or five days before continuing again. In this way she is kept in quite good health.

As a result of the medical inspection of school children in Norfolk, Va., at the beginning of the school session, four cases of diphtheria were discovered and placed under quarantine.

Proceedings of Societies, Etc.

AMERICAN PROCTOLOGIC SOCIETY.

(Concluded from last issue.)

Acute Post-Operative Intestinal Paresis.

By J. A. MacMILLAN, M. D., Detroit, Mich.

1. Definition: A paralysis of a portion of the intestine which suddenly dilates and becomes the receptacle for gas and fecal material.

2. Etiology: Not known, but probably due to sepsis, trauma, etc.

3. The lesion is probably in the sympathetic nervous system.

4. The treatment consists of gastric lavage, enemata, and enterostomy.

5. Precautions attending a secondary operation.

Prophylaxis and Treatment of Post-Operative Retention of Urine.

By FRANK C. YEOMANS, M. D., New York, N. Y.

Ascertain and correct, if possible, lesions of the urethra and bladder in advance of operation.

Physiology of urination. Factors that interfere with it after operation.

Prophylaxis—Urinary antiseptics and posture.

Treatment—Suggestion, local applications, medicine, standing. Aseptic catheterization.

Some Practical Points Gleaned from the Observations of a Proctologist.

By SAMUEL T. EARLE, M. D., Baltimore, Md.

Dr. Earle reported a case of primary tubercular ulceration of the right buttocks, which was not connected with the rectum by a fistulous tract. In this respect it differed from the one reported by him in his work on "Diseases of the Anus, Rectum and Sigmoid," figure 62, page 201. It was excised by the thermo-cautery knife, after which it healed very promptly.

Dr. Earle also reported a very aggravated case of pruritus ani, which had resisted local applications, autogenous vaccines and treatment by the X-ray. Under local anesthesia he found an ulcer over the posterior commissure just above the internal sphincter, which connected on each side with numerous submucous and subcutaneous superficial fistulae which enveloped the entire anal margin and connected with each crypt of

Morgagni. The ulcer was incised, the scar tissue at its base removed, and the fistulous tracts were all opened up. There was only an occasional twinge of itching following the operation, and he made a speedy recovery.

The Subnormal Colonic Function As a Diathesis.

By J. COLES BRICK, M. D., Philadelphia, Pa.

The writer was led to investigate the causes of a persistent case of constipation which had existed since childhood, and which was of an average duration of seven days, in a young woman of 18, who was in seemingly good health, but whose father had had the same condition and had subsequently developed a case of chronic arthritis deformans. The young woman had been treated by many doctors and by many methods, but all without any more than temporary success.

Resort was finally made to X-ray examination after giving a bismuth meal. The plates showed that at two points, viz.: the cecum and the rectum, the colonic contents remained for three days, and operative measures were decided on. No abnormality was found except an old and thickened appendix, containing three concretions, and the tip being adherent to the ovary. As there were some moderate sized hemorrhoids present, these were removed at the same time as the appendix, and the patient made a good recovery. The X-ray plate showed a very moderate degree of visceroptosis, and a "Storm" belt was ordered. The patient has had a regular bowel movement daily, with the use of a mild laxative, which it had been impossible to produce at any previous time.

Examination of the X-ray plates showed a bilateral calcification of the costal cartilages, which the writer thought was an early symptom of arthritis deformans, and after discussing the various theories of the cause of the disease, accepts the theory that it is a toxic trophoneurosis affecting the cerebro-spinal nerves, with its infectious focus in the gastro-intestinal canal.

The essayist believes that all cases of persistent constipation should be examined by all the means at our command, and finally not only by the administration of bismuth by the mouth, but by injection, with X-ray examination—conditions requiring operative interference will frequently be found by this means and corrected surgically.

Arthritis deformans is a most ancient disease, and evidences of many cases are shown to have existed before the pyramids were built. That it is not only possible but probable that the infection comes from the intestinal tract, and that if the cause is removed early before the destructive changes have occurred these cases can be cured, and even the advanced cases have their progress arrested.

The X-Rays As An Aid In Making Diagnoses of Conditions in the Rectum and Other Portions of the Large Intestine.

By J. R. PENNINGTON, M. D., Chicago, Ill.

He stated that while the rectum is easily inspected by various specula, and the sigmoid is less readily accessible by the use of sigmoidoscopes, such as the one with insufflation devised by him, the colon is inaccessible and its exact position difficult to ascertain. Very often it is also difficult to determine and locate pathologic conditions in the large intestines.

Until recently the means of diagnosis have been limited to those used in other portions of the alimentary canal, viz.: Inspection after dilatation of the bowel with air or water, palpation, percussion, and trans-illumination. All of these are open to the objection that they are uncertain.

The writer observed in the latter part of 1899 that by introducing some agent into the large bowel which would cast a shadow, the X-rays may become useful in making a diagnosis of conditions in the twin cavities. It is only recently, however, that such procedures have become of practical value.

A bismuth meal is useful in diseases of the stomach or duodenum, the agent being suspended in milk, acacia water, thick soup or some similar vehicle.

But for the large bowel, the action of bismuth per os is very slow. One author estimates that it requires from 12 to 15 hours for the bismuth mixture to reach the ileo-cecal valve, about 24 hours to gain the transverse colon, and 36 hours to penetrate to the sigmoid. By the method advocated this is done, so to speak, instantaneously.

Coming now to the technic: The patient's bowels are first cleansed by means of laxatives and injections. He is then placed in the knee-shoulder position, and from 25 to 30 ounces of

the mixture used for casting the shadow injected into the large intestine. For this purpose the author uses an ordinary irrigator and a short rectal tip. A long rectal or colonic tube for administering the injection is unnecessary. After the suspension is injected the patient lies on his right side for a few moments so part of the menstruum may pass into the cecum. He is then placed in either dorsal or ventral position on the radiographic table and the picture taken.

Analyses, Selections, Etc.

Gout.

H. A. Bosma, New York, in an article on the *Modern Conception of Gout and Its Latest Treatment*, says that Emil Fisher demonstrated that uric acid is derived, not from albumin, but from nuclein. There is no gout without a uricemia as precursor, yet there are uricemias that do not produce gout, e. g., leukemia in which, sometimes, there is far more uric acid in the blood than we find in gout. Uric acid develops in the blood of a healthy subject when he is fed on purin-containing diet; but the gouty individual has it when fed on a diet entirely free from purins.

Another observation of recent date is that uric acid in the blood is mononatrium urate held in solution. The blood of a gouty person is not oversaturated with uric acid, nor is its alkalinity decreased—in fact, it is often increased. The mononatrium urate thrown out of solution sets up inflammatory processes in the joints: Van Loghem thinks that it is mechanical irritation that causes the inflammation. As to the cause of the deposition of the urates in the joints, experiments by Van Loghem and Silbergleit have shown that an increase of sodium in the body-fluids decreases the solubility of the mononatrium urate, thus strengthening the views of Falkenstein, who empirically found beneficial effects from the ingestion of hydrochloric acid. Umber thinks that in gouty subjects the affinity of the tissues for uric acid is increased; and he refers to the great absorbent power of cartilage for uric acid.

Our therapeutic measures are the logical deductions from what we, at present, know about the pathogenesis of gout: 1. Restrict purin-containing food. 2. Accelerate the excretion of

uric acid by way of the kidneys and intestines. 3. Increase the solubility of the urates. 4. Promote oxidation of uric acid.

Concerning the last, Lowenthal's experiments with radium on ferments led Gudzent to investigate the influence of radium on the disturbances in nuclein metabolism caused by a deficient action of ferments. It was shown that *in vitro*, radium emanation dissolves and destroys mononatrium urate, and, further, that it does the same thing in the human body. Gouty patients, after a prolonged treatment with radium emanation, whether taken in water or by inhalation, lose their uricemia, and they metabolize easily purin-containing food. According to Gudzent this is due to activation of enzymes that had become inactive, chiefly of the uricolytic ferment. (Brugsch and Schittenhelm have shown that the essential factor in gout is a disturbance in the nuclein metabolism brought about by some defect in the entire fermentative apparatus, producing a constant presence of uric acid in the venous blood). These beautiful researches have paved the way for a more radical cure of gout and other diseases of metabolism; and they also have thrown a new light on the empirical fact that many constitutional diseases are benefited by taking the waters in watering-places here and abroad.—(*Therapeutic Gazette*, September, 1912.)

Pentosuria.

Pentosuria, first recognized by Salkowski twenty years ago, no longer belongs among the extreme rarities of pathologic metabolism. A considerable number of cases in which pentoses, or five-carbon sugars, were excreted in the urine have been described accurately in medical literature. The essential urinary symptom has been stated, in some instances, to manifest itself in more than one member of a family, so that pentosuria resembles in this respect some of those other rare anomalies of metabolism like alkaptonuria, which are now known to exhibit traits of inheritance. Manifestations such as these are, as a rule, accidentally discovered through faulty diagnosis involving a routine urinary examination for other symptoms; there is seldom any immediate occasion to suspect the perversion of nutrition which they present. It is, therefore, more than likely that pentosuria passes unnoticed in not a few individuals whom the absence

of conspicuous signs of ill-health protects from more careful examination.

Despite the repeated detection of pentoses in the urine of man—more than thirty cases being known—the exact identification of the sugar present has been effected in a very few instances only. From the standpoint of the metabolic significance and etiology of pentosuria it is quite as important to know precisely which of the five-carbon carbohydrates are here concerned as it is to know that ordinary glycosuria is characterized by the excretion of dextrose, rather than levulose, galactose, sucrose or lactose. Several years ago, Neuberg demonstrated the occurrence of the sugar arabinose in the urine of the pentosuria patient at his disposal. Lately, Elliott and Raper have studied another case in which the pentose-sugar apparently differs from that described by Neuberg, and possibly is ribose. This is interesting because the investigations of Levene and Jacobs have shown that the pentose-sugar ribose is present as a constituent complex in some of the nucleic acids.

The carefully examined instances are too few to encourage speculation as to the physiologic history of the urinary pentose. Inasmuch as pentosuria is increasingly more likely to be detected by clinicians, now that more careful routine examinations are being insisted on, the importance of pointing out the cases and furnishing an opportunity to clinical investigators to make further chemical researches on the urine of these patients deserves mention. Quite aside from any immediate help to the individual examined, it should be a pleasant duty for the practitioner to co-operate with the scientific investigator by giving him an opportunity to try to clear up the obscurity in which the real significance of pentosuria is now veiled.—(*Editorial, Journ. A. M. A.*, June 22, 1912.)

The Cobra Venom Hemolysis Test in Syphilis.

Stone and Schottstaedt (*Archives of Internal Medicine*, July 15, 1912) report their results with a modification of Weil's technic for testing the hemolytic powers of cobra venom. The basis of the test rests upon the principle that red cells of luetic individuals offer increased resistance to hemolysis. Normal erythrocytes or red corpuscles derived from non-syphilitic individuals, undergo hemolysis in dilutions as high as 1 in 30,000 to 1 in 40,000; while luetic

erythrocytes show little or no hemolysis in dilutions varying from 1 in 15,000 to 1 in 30,000. The increased resistance of luetic cells to the hemolysin of cobra venom is apparently the first instance of specific alteration of diseased body cells to an hemolytic agent.

As a stock solution 1 to 2,000 dilution of dried cobra venom in 0.9 per cent. solution NaCl was used. 2 c.c. blood is drawn into a syringe containing 2 c.c. of 2 per cent., sodium citrate solution, expelled into a 15 c.c. graduated centrifuge tube and placed in the ice box until ready for use. Clots are carefully fished out; the supernatant citrate solution is removed with a capillary pipette; the tube is filled with 0.9 per cent. saline solution and centrifuged at moderate speed for 10 minutes. The salt solution is pipetted off and the process thus thrice repeated to remove all serum.

Of the washed cells 0.6 c.c. should remain in the tube to which is added the saline solution to 15 c.c.

When ready for use the cell suspension is gently shaken to secure even distribution of the cells.

One c.c. of cell suspension is then added to 1 c.c. of venom dilutions: 1:10,000; 1:15,000; 1:20,000; 1:30,000. The tubes are covered with tin foil, placed in the incubator for one hour at 37 degrees; then carefully shaken, they are placed in the icebox over night, when they are again gently shaken, and the readings are taken one hour later.

The cobra venom hemolysis test is lues appears to be more sensitive and persists much longer than the Wassermann in treated patients. The test is less laborious and time consuming, while the final readings are clearly cut and the possibility of error less frequent. The especial field of this method of determining the phenomenon of retarded hemolysis consists of the latent stages of lues when clinically the diagnosis is obscure. The Wassermann positives in latent syphilis averaged 52.1 per cent. while the Weil positives in latent syphilis averaged 78.1 per cent.

A striking contrast to the hyposusceptibility of the red cells from luetic individuals was noted in the hypersusceptibility of the corpuscles of individuals in an active state of tuberculosis.—(*Med. Review of Reviews*, Sept. 1912.)

Disinfection by Iodine.

The antiseptic preparation of an operative site with tincture of iodine has become so much the fashion that any little hint relating to its successful application must prove useful to many of our readers.

An argument against the method is the irritation produced, ordinarily slight, it is true, but sometimes very pronounced, occasionally and unexpectedly serious.

The preventive consists in applying to the painted region a 5 per cent. solution of hyposulphite of sodium. After the application of iodine, the surface is covered with a layer of absorbent cotton, and about five minutes later the cotton is soaked with the sulphite solution, warmed to about 104 degrees. The iodine is changed to iodide of sodium by the solution, which removes the irritation, and, being itself practically a physiologic solution, it is painless even to wounds or to tissues other than the skin.

The idea is to be credited to Prof. L. Sabatini, of the University of Padua.

It is both simple and efficient in practice.—(*Editorial N. O. Med. and Surg. Journ.*, October, 1912.)

In this connection the *Wisconsin Medical Journal* for April, 1912, contains an article on "Some Dangers in the Use of Tincture of Iodine in Skin Disinfection." It reminds us that now that the tincture of iodine has come into common use in the disinfection of the skin prior to operations, some care and discrimination must be exercised to avoid the unpleasant results which sometimes follow its use.

In cases in which the use of a hot, wet dressing after the operation is contemplated, the employment of the iodine is fraught with danger, as under these circumstances there is considerable probability of a severe dermatitis developing even if the iodine has apparently been thoroughly washed off with alcohol before the dressings are applied.

The use in the preparation of the patient of a wet dressing over the site of the operation, or even the use of a small amount of water in the form of lather for shaving the part, may lead to the development of an iodine dermatitis, unless the skin is very thoroughly dehydrated with alcohol, followed by ether and completely dried before the tincture of iodine is applied.—(*Med. Rev. of Reviews*, Sept., 1912.)

Book Notices.

Diseases of the Genito-Urinary Organs and the Kidney. By ROBERT H. GREENE, A. M., M. D., Professor of Genito-Urinary Surgery. Fordham University, New York; and HARLOW BROOKS, M. D., Assistant Professor of Clinical Medicine, University and Bellevue Hospital Medical College. Third Revised Edition. 8 vo., 639 pages and 339 Illustrations. Philadelphia and London. W. B. Saunders Company, 1912. Cloth, \$5.00 net; Half Morocco, \$6.50 net.

This book is one that cannot be claimed by the specialist alone, for as one reads along he must be struck with its particular value to the general practitioner, who has much need for a working treatise on the disorders discussed. We find the volume under consideration of the highest merit, and fully deserving of the distinction it has hitherto borne of ranking with the best that have been published on diseases of the genito-urinary organs and the kidneys.

The Taylor Pocket Case Record. By J. J. TAYLOR, M. D., 12 mo. 252 pages, tough bond paper; red limp leather. Price, \$1.00. Published by The Medical Council Co., Forty-second and Chestnut Streets, Philadelphia, Pa.

To the physician who wishes to keep a systematic record of important cases as they occur in daily practice, this pocketbook will supply a convenient form so arranged that necessary data can be written down in the briefest possible time. A syllabus, detailing important points to be considered in each class of cases, is inserted as an aid to thorough examination, as are also spaces for shorter notes at sixteen subsequent visits.

What to Do in Cases of Poisoning. By WILLIAM MURRELL, M. D., F. R. C. P., Senior Physician to Westminster Hospital; Lecturer on Clinical Medicine and Joint Lecturer on Principles and Practice of Medicine. Eleventh Edition. 1912 16 mo. 283 Pages. Paul B. Hoeber, 69 E. Fifty-ninth Street, New York. Price \$1.00 net.

What to do in a case of poisoning is a question that has occasionally to be solved by every practitioner. In such instances, there is no time for extended reference to larger works, for the call is necessarily urgent. In this little book the physician should find a convenient assistant, for it is small enough to be slipped in any pocket and can be referred to on the way to the patient, or even after arriving—between times—while awaiting the results of the first treatment used. The information given, although concise, is accurate, and withal sufficiently full to be of the greatest service.

Editorial.

All Worthy Physicians Should be Urged to Join Their State Society.

The Medical Society of Virginia will hold its forty-third annual session at Norfolk, Va., October 22-25, 1912, now less than two weeks off. The regular program will show symposiums of three papers each, on three different subjects, viz.: 1, Gastric and Duodenal Ulcer—(this being the selected subject for general discussion), 2, Occipito-Posterior Cases, and, 3, Pellagra. In addition to these, there will be more than forty other papers to be read. Apart, however, from the scientific side, which gives every promise of excellence, no one has yet attended a meeting in Norfolk but what he was made to feel—on the social side—that “good cheer” was there a plenty, nor was it hard to find. And so, from whichever viewpoint these meetings are regarded, each one in attendance may reasonably expect a profitable session on this occasion.

But, with only a short period intervening before the opening day, we are informed by the Secretary, Dr. Paulus A. Irving, of Farmville, that there are “very few new applicants for membership”, the exact number not being stated. When it is remembered that annually there are many losses from death, or resignation, or other causes, the fact that there are but few new applicants becomes a matter of concern. This session, from death alone, will show a loss of nearly thirty members.

With the gradual increase from year to year in the number of doctors throughout the State, it will not be sufficient to simply balance losses with what is gained; the increase should be at least proportionately greater than the total loss. Although many are disposed to leave the burden of this responsibility with the Secretary alone, he should not be expected to, nor can he secure the best results without co-operation of the rank and file of members. Each one should lend a helping hand, and thus aid in bringing all eligible physicians into the Society. The Secretary may write repeatedly to those who should join, but, unless his efforts are supplemented by the individual work of nearby members who can see and talk in person with prospective applicants, the likelihood is that correspondence is laid aside for a more convenient period, when it may be forgotten, or else is given no further

thought, the whole thing being looked upon as a circular letter—good only for the waste basket. It is personal work that counts in these instances, and more of it should be done by those who are already members.

In Virginia, at the present time, there are probably between four and five hundred physicians who are regular and in every way worthy of membership in the Medical Society of Virginia. A few of this number, recognizing the benefits to themselves individually, and to the profession as a whole, as well as to their community, come forward and seek membership of their own volition; some, after the subject has been mentioned by professional friends, send in their applications promptly, while others, promising to give the matter attention at an early but more convenient date, put off doing so until it is forgotten. Many of those who would likely join, if properly approached, are young graduates who have just passed the Medical Examining Board, and are either serving as internes at various hospitals, or else have but recently launched into private practice. Now is the time to land these men, before they have gotten "set in their ways," and feel that they can get along without affiliation with others in a medical society. If your professional friends and neighbors are worthy, *tell* them you will endorse their applications for membership in the Society, for many will hesitate to ask you to do this.

There are many benefits that accrue to the doctor who is a member of his State Medical Society and the subject has been discussed in our columns from time to time during the past several years. With space at this time forbidding repetition of the many advantages of medical societies, suffice it to say that he who attends with hope of gaining knowledge, to him there will be profit; and, he who comes and leaves his cares behind, to him will be pleasure

Keep Consumptives From the Southwest.

The National Association for the Study and Prevention of Tuberculosis will ask all Southern and Eastern States to stop sending consumptives in the last stages of the disease and without sufficient funds, to the Southwestern part of the United States, with the hope of being cured. It has been estimated that not less than 10,000 consumptives go to that portion of the country annually, and that many of them there die far

from friends, and in many cases with only such comforts as can be furnished by charity. It is a well known fact that tuberculosis can be cured in any part of the United States, and where treatment in sanitariums near home cannot be afforded, the cure can be taken in the home under the direction of a physician, or in a municipal tuberculosis dispensary.

The Association has also designated October 27th as the Third National Tuberculosis Day, and will urge churches to call special attention to the prevention of the disease on this day, or at some time in the week preceding or following this date. Tuberculosis Day has been changed from the Spring to the Fall of the year, with the purpose also of interesting church-goers in the Red Cross Christmas Seals, which will be sold this year as usual.

New Requirements of Medical Students and Schools in New York.

On and after January 1, 1913, the New York Board of Regents will require that all students qualifying for admission to any medical school in New York State shall have completed a year's study in physics, biology and inorganic chemistry, whether or not they may be possessors of literary degrees. It shall also be required of the applicant before the State Board of Medical Examiners, that he shall have completed the above course prior to entering upon his medical education.

Beginning with the present session, medical schools to be recognized by New York as belonging to the first grade must have at least six full time, salaried instructors giving their entire time to medical work.

The Rockingham Memorial Hospital,

Located on grounds adjoining the State Normal School, at Harrisonburg, Va., was opened with public ceremonies on October 1st, at which time lunch was also served by the Ladies' Auxiliary of the hospital. The hospital, which was under construction for four years at a cost of \$30,000, was first made possible by a bequest of the late William G. Leake, of Harrisonburg.

Dr. Francis W. Upshur

Has removed his office and residence to the Chesterfield Apartments, at Shafer and Franklin Streets, this city.

Lectures at N. Y. Post-Graduate Medical School and Hospital.

Prof. H. Strauss, of the University of Berlin, will give a lecture, in German, at the New York Post-Graduate Medical School and Hospital, Twentieth Street and Second Avenue, on "Gastric Secretion from the Therapeutic Point of View," on Monday, October 14th, at 4 P. M., and at the same hour on Tuesday, October 15th, a lecture on "The Method and Purpose of Dechlorination in Nephritis."

Prof C. von Noorden, of the University of Vienna, will give a series of lectures, in English, at the same place, on "New Aspects of the Pathology and Treatment of Diabetes," and on "Diagnosis and Treatment of Nephritis," beginning on Tuesday, October 29th, at 4 P. M., and continuing for four consecutive days, at the same hour. Cards of admission upon application.

Insanity in England and Wales.

According to the Sixty-sixth Annual Report of the Commissioners of Lunacy for England and Wales, there were 135,661 certified insane persons under treatment in those countries January 1, 1912, of which 46.5 per cent. were males and 3.5 per cent. were females. This was an increase of 2,504 over last year. For the past ten years, the annual increase has been about this same number.

Dr. L. Duncan Bulkley,

Of New York, will give a fourteenth series of Clinical Lectures on Diseases of the Skin in the Out-Patient Hall of the New York Skin and Cancer Hospital, Second Avenue, Corner of Nineteenth, on Wednesday afternoons, from October 30, to December 18, 1912. This course will be free to the medical profession upon presentation of their professional cards.

Diseases Among Indians of United States to be Studied.

In an act of Congress approved August 24, 1912, relative to Indian affairs, there is appropriated the sum of \$10,000 to enable the Public Health Service to make a thorough examination as to the prevalence of tuberculosis, trachoma, smallpox and other contagious and infectious diseases among the Indians of the United States. These investigations will be made by a number of commissioned officers of the service.

Public Drinking Cup No More in Maryland.

The act recently passed by the Maryland Legislature to abolish the use of the public drinking cup in all public places is now being enforced by that State Board of Health.

Poliomyelitis Transmitted by Fly.

At the Fifteenth International Congress on Hygiene and Demography, held in Washington, the last week in September, Prof. Rosenau, of Harvard University, announced, as the result of a number of experiments, that poliomyelitis is evidently transmitted by the bite of the common biting fly, *Stomoxys calcitrans*, which resembles in size and appearance the common house fly. This fly, while frequently found in and around stables, is by no means uncommon in houses.

Dr. George C. Hall,

Formerly of New York City, has been made assistant medical director of the Life Insurance Company of Virginia, with his home in Richmond, Va. He will serve under Dr. H. Cabell Tabb, who has been medical director of this company for a long number of years.

The United States Civil Service Commission

Announces an open competitive examination for medical interne at the Government Hospital for the Insane, October 23, 1912, at a number of places in all the States. The examinations are open to both men and women, although there are no vacancies open to women at present. Applicants must be 20 years of age or over, unmarried, and citizens of the United States. They must have been graduated from reputable medical colleges not more than two years prior to date of examination, unless they have been continuously engaged in hospital, laboratory, or research work along lines of neurology or psychiatry since graduation. Applications should be forwarded at once to above commission at Washington, D. C.

Memorial to Florence Nightingale.

We note that London has decided to honor the memory of Florence Nightingale, by erecting a monument to her on the site immediately opposite the Guards Crimean Memorial, London. Any money subscribed remaining after the erection of this statue will be applied to a fund for the benefit of nurses disabled by sickness or age.

THE Virginia Medical Semi-Monthly.

(FORMERLY VIRGINIA MEDICAL MONTHLY.)

Vol. 17, No. 14.
Whole No. 398

RICHMOND, VA., OCTOBER 25, 1912.

10 Cents a Copy.
\$2.00 a Year.

Original Communications.

PRESIDENTIAL ADDRESS—MEDICAL SOCIETY OF VIRGINIA.*

By HUGH M. TAYLOR, M. D., Richmond, Va.

At the last meeting of this Society, Dr. Rawley W. Martin responded to the Address of Welcome. At the mention of that name, I feel like saying of him what was said of Lord Lister, "it is not a profession, not a nation, but humanity which stands with uncovered head to do honor to his memory." Ever loyal to Virginia, in perhaps his last public address, Dr. Martin urged the members of this Society to greater effort to build medical centers in this State. His heart-spoken words awakened an interest in what factors go to make medical centers, and prompt me to crave your indulgence while I briefly refer to some of the most conspicuous.

Seemingly, my appeal will be largely to the younger men of the profession. We may ask, who are the young men? Age is not measured only by years, but best by activity. Hunter McGuire, Bedford Brown, Herbert Nash, Rawley W. Martin and other well-known members of this Society were never old men professionally. The young man who does not appreciate the educational value of this and other societies, is prematurely old, while the man of active interests is never old.

What factors created medical centers in the past, what those of the present, along what lines may we look for them in the future, and finally, what will be their effect upon the mission of this Society, the health and happiness of mankind? Have we had medical centers in Virginia in the past? If so, when and where, and what made

them? That there have been some notable medical centers is a fact known to all students of the history of medicine and surgery in Virginia, and I would not be excused for recalling them except in that connection to study what and who made those centers. A study of the records of the past impresses the conviction that it is possible to create a medical center at any cross-road, in any village or city in this State, and that this possibility is within the capability of each one of you. I would impress the idea that the intellectual medical giants in rural and village Virginia in the past were not born great, but, by their own efforts, made themselves great, and their greatness created a medical center.

How many of you recall the fact that a medical school existed in the early history of Winchester, Virginia? What made that then little hamlet a Mecca for student life? Not hospitals, laboratories, etc. In that village lived and worked Hugh Holmes McGuire, as truly a giant among the men of his day as any one of his many distinguished descendants. How many of the alumni of the Medical College of Virginia are familiar with the history and life work of its founder, Dr. J. P. Mettauer, of Worsham, Prince Edward County, a cross-roads village near Farmville? This giant focused the attention of the profession upon his work to such an extent that he created a medical center, which gave birth to the medical department of Hampden-Sidney College, and finally to the time honored *alma mater* of so many of the worthy practitioners of this and other States—the Medical College of Virginia. There was nothing in the environments of Worsham to make a great man, but the great man made that community a medical center.

What made the banks of the Rappahannock River ever memorable in the annals of surgery? The one fact that on a plantation there lived William Baynham, a veritable pathfinder in surgery, who had the foresight and courage to do

*Address of President before the Medical Society of Virginia at its forty-third annual meeting at Norfolk, Va., October 22-25, 1912.

the first operation for ruptured tubal gestation ever performed in America. Ephraim McDowell, in a log cabin, with a buck thorn pedicle ligature, sowed the seed of abdominal surgery. Biographers tell us that backwoodsmen stood at the cabin door with their rifles in hand, and swore they would kill the doctor if his patient died. Medical and lay press then denounced him as brutal, but now monuments, not too many and none too high, commemorate his benefits to womankind.

It is hardly necessary for me to remind you that Dr. Marion Sims was a village practitioner when he laid the foundation of his international fame. He had no trained nurses and glittering operating room paraphernalia. Think of the insatiable perseverance of a man who, without help, could operate twenty-five or more times in his effort to cure a vesico-vaginal fistula in a poor negro woman! Only those who worked in the pre-aseptic surgical era can appreciate what a bugbear vesico-vaginal fistula was to the surgeon. We are told that Dr. Sims, in walking across his yard, noticed a piece of copper wire, and the thought flashed through his ever-working brain, "Why not spin it out fine and use it as a suture?" The metallic suture was the creation of this thought.

Does someone suggest that these men were men of genius? What is genius? Sir Frederick Treves, in an address to the graduating class of Aberdeen University, on "What Factors Make or Mar a Young Medical Man's Success in Life," took up first the subject of genius, and expressed himself as believing very little in congenital genius, but he had vast confidence in acquired genius. He endorsed Carlyle's definition of genius as being nothing more nor less than a capacity for work, and agreed equally with Mr. Edison, who defines genius as five per cent. of inspiration and ninety-five per cent. of perspiration. The great Darwin wrote: "I have always maintained that, with the exception of fools, men do not differ much in intellect. It is only in zeal and hard work that men differ so much."

In my early professional career, it was my good fortune to be associated very closely with one counted a great genius. I have never known such an indefatigable worker, and, granting a large proportion of inspiration, this pathfinder in surgery gave abundantly of his perspiration, and sustained the claim that genius is the "capac-

ity for taking pains." Mr. Treves might have quoted Longfellow to the effect that "the talent of success is nothing more than doing well what you do." Mr. Treves must have expended ninety-five per cent. perspiration to produce his great surgical works, which enforce his claim that work and not environment is the key to success.

This Society may well keep in memory those old past masters in medicine and surgery, Gleaves, Otway Owen, Gabriel McDonald, Francis Stribling, David Tucker, Charles Bell Gibson, Bedford Brown, Herbert Nash and others. Did Wytheville, Lynchburg, Union, Staunton, Alexandria, Richmond, and Norfolk make these men? No, by their work they made themselves medical centers, and their homes received their reflected light. Did Georgia make Crawford Long? Did Alabama make Sims, South Carolina Henry F. Campbell or Kinlock, or Kentucky Samuel F. Gross or Lewis H. Sayre? What but ninety-five per cent. of the Mayo perspiration gives Rochester, Minnesota, the medical fame it so richly deserves?

Did Virginia make Walter Reed, or did Walter Reed infuse five per cent. of inspiration and ninety-five per cent. of perspiration into his life's work, and thereby make humanity his debtor? One of his sisters told me of his struggles to get an education. A poor boy, he had to rely upon his own efforts in youth, and then, as in manhood, difficulties were faced only to be overcome. His sister told me that while studying medicine at the University of Virginia, he often had to live on cheese and crackers. Am I indefensibly optimistic as to the possibilities, with persistent effort, on the part of the men before me? I claim that every broad meadow of our lowlands now encompasses just such men, and every towering peak of our highlands now looks down upon men with capabilities equal in every respect to those possessed by the men I have mentioned, and who, like them, need only to put forth the ninety-five per cent. of perspiration.

Does someone suggest that the field for research work has been well tramped over? A dinner was given Sir Isaac Newton in London. He was referred to as the great scientist. In his reply he said in the field of science he reminded himself of a little child on the sea-shore, picking up here and there a pebble of truth, while the great sea of the unknown lay before him. When Lord Lister entered the profession of medicine,

he said to his father-in-law, a distinguished surgeon, "I think I will devote myself to the study and practice of surgery." "I would not if I were you," said the distinguished surgeon, "for I think the science of surgery has advanced so far that it is practically a closed book."

Suppose Lord Lister had been influenced by such pessimism. Think of the evolution of surgery he helped so much to create! What must have been his feelings during his long life to realize how much his work had blessed suffering humanity!

Like Sir Isaac Newton, we should feel that we stand just on the threshold of knowledge, while the great sea, vast in its expanse, lies before us. Is it nothing to you that there exists in this country alone one million cases of tuberculosis, much of which is curable and, more important, preventable? That we have in the United States from fifty to seventy-five thousand deaths each year from typhoid fever, one thousand in Virginia, every case of which is preventable? That thirty-three and one-third per cent. of the deaths in typhoid fever occur from perforation, and that from forty to fifty per cent. should be saved by prompt operative intervention? Can we be indifferent to the fact that there occur from thirty-five to forty thousand deaths from cancer in the United States every year, that this scourge is increasing in frequency, is unmerciful and unrelentless in its demands for the patient's life, and that the higher the civilization, the greater its increase?

It is of unknown origin, and until we do know its origin, we are as powerless to stay its increase as was Hippocrates. We do know that it is primarily local, and, as such, is curable, and surely, better by the regular practitioner than by the quack. Can we ignore the burning issue, is cancer infectious? Is it contagious? Should we adopt this idea and inaugurate a preventive crusade against its diffusion, as rigid as that in vogue as to tuberculosis, typhoid fever, etc.? I have long held with those who believe that cancer is infectious, but, until we know how it infects, we cannot hope to bring it within the scope of preventive medicine. All honor to a man who will discover a serum for its cure, but many times greater honor to the one who will tell us how to prevent its infection! Dr. Peyton Rous, of New York, has recently greatly strengthened the infectious theory of cancer by filtering free of all cellular bodies the fluid of cancer tissue, and

then, by inoculating this filtered fluid, reproducing cancer. His experiments were made with a sarcoma occurring in a hen. Animal and vegetable life of Virginia is the subject of tumor growth both benign and malignant, and affords to each of us ample opportunity of devoting ninety-five per cent. of perspiration to their study. It costs but little to equip a laboratory. One-tenth of what we spend in non-essentials will furnish all the apparatus needed for urinary, blood tissue and internal secretions examinations. Rats and mice, rabbits, dogs and guinea pigs are available in the country for experimental work. Wherever we turn, we are brought to face vast fields of preventive and curative medicine, which have hardly been entered. Every new discovery opens up new paths to explore.

Jenner had only the equipment of his brain when he solved the problem of vaccination. Koch unraveled the mystery of infection in the great white plague by studying the death of a little lap dog. Illustrations along the lines we have considered could be amplified indefinitely, but surely we have said enough to sustain the conclusion that pioneer work ample for the best efforts of the most skilled is abundant, and professional advancement only awaits the industrious harvester.

In conclusion, what do medical centers mean to this Society? They mean its very life. Strong progressive medical men from all parts of the State mean a strong co-operative body of men banded for advancement. It means the lifting of this Society to higher and higher plains of usefulness. It impels a stronger Examining Board, and a State Health Department with wider scope of usefulness. It means the moulding of professional and public opinion for the advancement of educational conditions in this State. It means individually and collectively our uplifting and all that this implies in the protection of the well and the cure of the diseased.

6 N. Fifth Street.

HYPOCHONDRIA—A NEGLECTED SYNDROME.

By HANSELL CRENSHAW, M. D., Atlanta, Ga.
Neurologist to the Hospital for Nervous Diseases.

Remarkable it is how words, particularly striking words, may act as obstacles to medical progress. The term "neurasthenia" is an illustration of this curious fact. Properly applied,

as intended by Beard, its originator, this word is most apt, striking and useful. Unfortunately, however, popularity has expanded its habitual meaning to a point where it serves to confuse our nomenclature and obscure our classification of diseases rather than to designate clearly the neurosis of fatigue. The present loose use of this word encourages us to dispense with differential diagnoses between such neuroses as neurasthenia proper, psychasthenia, hypochondria and even hysteria; so much so that some one has suggested that we substitute "neurologic scrap-heap" for "neurasthenia." In short, this term, like "rheumatism," "heart failure" and "biliousness" has come to mean nothing in particular. There is, however, an entity—a fatigue neurosis—properly called neurasthenia.

So far back as 1765, Robert Whyte, of Edinburgh, called attention to the difference between nervous exhaustion, hysteria and hypochondria. Of recent years, however, we seem to have lost sight of these differences and have devoted volumes to neurasthenia and hysteria, while almost wholly neglecting hypochondriasis. This is unfortunate, inasmuch as hypochondria calls for a prognosis and a treatment different from the prognosis and treatment appropriate to either neurasthenia proper, psychasthenia or hysteria.

While there are some symptoms common to neurasthenia and hypochondria, the two clinical pictures are quite different in their chief features. Thus, while the neurasthenic and the hypochondriac are both despondent and generally have head sensations, the hypochondriac is vastly more concerned about the condition of his several organs than is his neurasthenic brother. Again, evidences of nervo-muscular exhaustion and fatigue are either slight or altogether absent in the hypochondriac, whereas they are self-evident and predominant in the neurasthenic. Moreover, while the neurasthenic, and particularly the psychasthenic, may be somewhat introspective, they are chiefly concerned with imaginary menaces and dangers on the outside; whereas, the hypochondriac is altogether interested in imaginary trouble within. A further difference between the typical neurasthenic and the typical hypochondriac is that the knee-jerk is usually much exaggerated in the neurasthenic, whereas it is generally normal or slightly decreased in the

hypochondriac. The case is similar with the other tendon reflexes.

The chief similarity between a hypochondriac and a victim of hysteria is the fact that the body is likely to be well-nourished and vigorous in both instances. The hypochondriac, however, never exhibits any of the well-known stigmata of hysteria, such, for example, as areas of anesthesia, contractures or contracted visual field. Neither does he exhibit any of the so-called accidents of hysteria, such as hysterical convulsions, globus hystericus or of the pain in the top of the head, termed *clavus*. Another difference between hysteria and hypochondria is that the victim of hysteria is eminently responsive to suggestion, whereas the hypochondriac is usually comparatively indifferent to psychotherapy.

Among modern neurologists who insist upon the importance of differentiating hypochondria from other neuroses is Francis X. Dercum, of Philadelphia. He holds that the condition is explainable upon the theory that the normal cenesthesia, or organic sense, becomes quickened as a result of idleness, unhygienic modes of life or over-indulgence in stimulants, into an abnormal realization of the actions of various organs of the body. Instead of experiencing a sense of well-being subconsciously from the impressions received from his various organs, as a healthy individual does, the hypochondriac experiences a sense of ill-being by becoming acutely conscious of the impressions sent to his brain from the various organs. Dercum insists that hypochondria is an entity presenting "a characteristic clinical picture which hardly permits of error."

He emphasizes the effect of idleness in the causation of this condition. "The want of occupation, the absence of a definite purpose in life," says Dercum, "are powerful factors in the production of hypochondria. The latter is common among the unoccupied wealthy and well-to-do. It is seen very frequently, also, in persons who, having led active lives up to a certain point of their existence and having accumulated means, suddenly abandon themselves to a life of ease. A professional man or a business man who has worked under pressure for many years and who suddenly abandons his calling, is in great danger of lapsing into hypochondria. The stimulus of work no longer determines his mental tone; slight disturbances

of function, indigestion, constipation—the result of his lessened activity—furnish the groundwork of a nosophobia. Ere long a superstructure of imaginary ills is added, and sooner or later he becomes the victim of a confirmed hypochondria.”

An important aspect of hypochondria is the fact that it now and then constitutes the chief expression of an on-coming paranoia and oftener of an on-coming involutinal melancholia. When it is a prodrome of insanity, however, it assumes a grosser aspect than in hypochondria proper, so that the patient believes, for instance, that a snake occupies the stomach, or that there is complete and permanent occlusion of the intestinal canal.

As this paper is intended to be suggestive rather than didactic, I shall close by merely sketching the salient features of treatment of hypochondria in contra-distinction to the treatment of neurasthenia and hysteria. In neurasthenia proper, complete rest in bed for a number of weeks plus over-feeding is a cardinal point. In hysteria, psychic suggestion, aided by rest, is the main thing; while in hypochondria pre-occupation supplemented by hygienic living and partial rest is the keynote. It will not do to put the pure hypochondriac upon the strict Wier Mitchell rest treatment. While he needs fixed hours for rest, he needs most of all diversion and pre-occupation. This is the malady wherein the work-cure often produces such brilliant results. Hall, of Massachusetts, has introduced the weaving of tapestry, carving of wood and pursuit of other handicrafts in the treatment of these introspective individuals as a means of turning the mind's eye from a morbid contemplation of the functions of the body outward to a healthful contemplation of the outer world.

1027 Candler Building.

URETERAL PAIN.*

By R. C. BRYAN, M. D., Richmond, Va.

Professor of Genito-Urinary Surgery and Associate Professor of Anatomy, University College of Medicine; Surgeon to Grace Hospital, etc.

It has been said that there is but one physiological pain—that of childbirth. All other pains are expressions of a pathological state. May not pain, then, be regarded as a blessing in disguise? For without this positive sensory re-

minder the foreign body, the broken bone, appendicitis, gall-stones, pleurisy, stone and a thousand other morbid conditions would go on to an unremediable end.

With such an exhaustive symposium here to-day upon pain, the anatomy, the physiology, the neurology of this condition will be taken up and discussed by those much better prepared than your reader.

Our topic, “Ureteral Pain,” is one of considerable interest because, if for no other reason, the function, the duty, the importance of this structure has been only recently appreciated in full.

The great anatomical and physiological role which the ureter plays has never received the support and advertisement which it deserves. It is analogous to the intestine, in that it is a musculo-membranous tube designed to throw off waste products of the body, possesses inherent power of mobility, is not under control of the will, has a most generous arterial, venous and nervous supply, communicates indirectly with the outer world, and, therefore, is liable at times to bad infections, lies retro-peritoneally, is intimately associated with some of the other abdominal viscera, and, further, is constantly undergoing its physiologic activity. But it is unlike the intestinal canal in that it is vertical throughout the greater part of its extent, its mesentery is linear and not enveloping, its absorptive powers are limited in the normal state, contains no bacteria, elaborates no product destined to aid metabolism, and, finally, is not used as a means for nourishment to the body.

The anatomy of the ureter will bear on our discussion, and some of the more important features will be discussed now.

The ureter, twelve to thirteen inches long and four to five mm. in diameter, courses vertically in its paravertebral bed on the psoas muscle, from the lower level of the first lumbar to the sacro-iliac articulation, to which it runs parallel anteriorly. It now seeks the level of the ischial spine, bends inward and downward and empties into the bladder about one inch and a half distant from its fellow of the opposite side; its mouth, protected by a closely woven reduplication of the muscular wall of the bladder, effectively prevents, except in instances of replacement fibrosis, the regurgitation of all vesical fluids. The arterial supply is most generous. Sampson has shown that the ureter may be dis-

*Read before the Quarterly Meeting of the Fourth Councillor District of North Carolina.

sected out from the kidney above to the bladder wall below, and suffers no necrosis by virtue of this intimate and kindly intramural inosculation. The normal calibre, though four to five mm., has three points of anatomic stenosis:

1. At that point where the pelvis of the kidney becomes the ureter, averaging one-twelfth of an inch in diameter.

2. The point of crossing the iliac artery, averaging one-seventh of an inch.

3. The opening of the ureter in the vesical wall, averaging one-tenth of an inch.

Both the right and left ureters cross the genito-crural nerve obliquely, and are crossed at an acute angle lower down by the spermatic or ovarian vessels. They are also crossed above, on the right side, by the duodenal flexure, and, on the left, by the pancreas and sigmoid flexure of the large intestine. The right ureter has, to its inner side, the inferior vena cava, and the left, to its inner border, the abdominal aorta.

The nerve reward is equally as great as the arterial, for the ureter is supplied in its different segments by the lumbar, sacral and pelvic chain, and highly provided with appropriate ganglia and anastomosing filaments. As Byron Robinson has shown, there are three points of rich anastomosis—(1) where the plexus ureteris and the ovarian or spermatic coalesce, explaining, by irritation, ovarian pain, retraction of the testicle, etc.; (2) where the plexus ureteris and plexus uterinae solidify, explaining uterine and vesical pain and disturbances; (3) where the plexus ureteris and that covering the internal iliac artery unite, explaining the pain in the thigh and knee. This referred pain must not be misleading. It is sent out through the abdominal brain, the big epigastric plexus, the central headquarters for intra-abdominal sympathetic involvement; and is comparable to the initial pain of appendicitis, being referred to the gastric, and not to the right iliac region.

Independent of the character of the urine, the physiologic office of the ureter is to secrete and propel urine, convey sensations, absorb and prevent regurgitation. Its office is, however, modified, exaggerated, or inhibited by a diluted normal urine, or by urine from a diseased or imperfect kidney, such as Bright's, pus kidney, tuberculosis, etc., and also by derangement of the integrity of the sympathetic system. Peristaltic waves begin at the pelvis and rhythmically

extend downward to the distal end. The point of contraction may be seen as an exsanguinated white circle enveloping the ureter. spurts of urine are forced into the bladder from every two to four minutes; the ureteral mouth opens, the jet is thrown into the bladder, the intramural segment of the ureter closes down proximally-distally. There is no regurgitation into the ureter's lumen. The force of contraction of the ureter and muscular effort in propelling urine into a filled and tense bladder is always greater than the resistance. Whether there is a maximum or minimum bladder resistance, the ureter's power is always plus. The discomfort, pain and distress of a filled bladder is doubtless due as much to the violent peristaltic waves and ureteral muscular contractions to throw urine into a now already over-filled and resisting reservoir, as it is due to the stretching and tension on the bladder-wall itself.

It is with woman particularly that many of the pelvic lesions from which she suffers encroach upon the ureter. Myoma, fibroids, subluxations of the uterus, versions and flexions, antero-posteriorly and laterally, tend to bend, nick and interfere with the normal output of the kidney; the pregnant uterus, by virtue of its great weight and volume, encroaches upon the ureter, particularly in its pelvic course, since the ureter is more protected in its abdominal excursion by its normal bed in the para-vertebral recesses. An elongated and flaccid mesentery, the intestines sinking into the pelvis, visceroptosis, chronic constipation and the pressure of fecal tumors upon the ureter, particularly about the sigmoid and upper rectum, enlarged tubercular or calcified retroperitoneal lymph nodes, aneurism, tumefactions, malignant over-growths in and about the pelvic inlet, lumbar Pott's disease, neoplasms of the anterior rectal wall, rectocele, vesical tumors, hernia, calculus and cystocele, intra-ligamentous cysts, suppuration and hæmatoma, ectopic pregnancy, pus tubes, dislocated, neoplastic or cystic ovary, ruptured graafian follicles with cellular adhesions in the ovarian fossa, intra-abdominal lesions producing fibrosis, tubercular peritonitis, concentric hypertrophy, cricket-ball bladder with consequent intramural pressure on the ureter, prostatic hypertrophy, urethral stricture, and last, but not least, carcinoma of the cervix, are some of the lesions more frequently met with by the general surgeon and gynecolo-

gist and whose presence, influence, or growth distress, intrude, press upon, compromise or inhibit the normal physiologic function of the ureter and the consequent output of the kidneys.

A review of the above pathological states would seem to convince us that there are a sufficient number of intra-abdominal morbid states that may give rise to a secondary ureteral pain.

The writer wishes to take this immediate opportunity to emphasize that we are dealing with that variety of pain which arises from the ureter proper, and has nothing to do with renal outbursts, for the pain of nephritis, of renal stone, and tuberculous neoplasms and degenerations, although they may be confounded clinically with a distress arising in the ureter, anatomically and physiologically they are as different as a gastric outburst from one involving the intestines below.

Probably "the one" cause of ureteral pain more than any other is stone. Your reader has no figures upon which to base his judgment, but supposes that 95 per cent. of all ureteral pain is caused by stone, crystals or debris which, lacerating the mucosa or ureteral walls, give rise to discomfort, pain or agony depending on the size or hardness of this foreign body.

The *character* of the pain varies, shading and refining from a slight discomfort, backache or lumbar stiffness which is transitory and uncomfortable, to a most excruciating agony of the impacted ureteral stone which is damaging not only the mucous and mural coats, lacerating and tearing the small vessels, but, by virtue of the block, giving rise to a temporary hydronephrosis above, with that severe train of symptoms which go hand in hand with renal glaucoma.

The *duration* of the pain may be from a few seconds to several minutes. The writer has had the opportunity to see cases undergoing the severest pain which kept up only ten to twenty seconds and it was all over. Again, this pain may continue for several minutes, for it is directly dependent upon the muscular grip of the ureteral wall, continuing as long as the spasm lasts and ceasing when the relaxation occurs.

The *frequency* of the pain is indeterminate; it would appear to have nothing to do with nocturnal or diurnal periods, nor does it seem to be dependent upon the various stages of digestion. The writer had the opportunity to operate upon a case in which there had never been but

one attack of so-called kidney colic. In another instance there had been a series of attacks over a period of forty-two years.

The *location* of the pain is regularly referred to the course of the ureter. During an attack the belly wall is hard on the affected side, the pain has come on so suddenly, so intense, and unbearable that the condition can be confounded only with gall-stone outburst. When the attack is over, abdominal palpation along the course of the ureter is painful and at the site of the stone another attack may be provoked by too arduous manual investigation.

The *radiation* of the pain is along the course of the nerves which we have already referred to. Higher up in the ureter where the plexus ureteris and the ovarian or spermatic coalesce, there is, through this neural irritation, the ovarian pain, retraction of the testicle, and great itching in the glans. In the middle ureteral segment, where the plexus ureteris and plexus uterinae solidify, there is the marked vesical pain, frequency of urination and symptoms of dysmenorrhœa. In the lower portion of the ureter, irritation of the plexus ureteris and that covering the internal iliac artery brings out the severe pain in the thigh, in the knee or even podalgia. Although this *referred* pain is at times even more severe than any other, it is not so constant in its character or location, seemingly selecting various organs at the time of different outbursts. This must not be misleading.

It may be well at this time to refer to the various other pathological states which can produce ureteral pain—namely, diverticula, kinks, strictures, adhesions; although the pain here is at times considerable, due to stagnation or transient blocking, the severity can never be as great as that of stone which mechanically blocks and lacerates the ureteral tube.

The *significance* of ureteral pain (of kidney colic) is at once evident and suggests to the examiner the possibility of stone.

Examination of the genitals, of the thigh, the knee, bimanual investigation with deep pressure, not only does not aggravate but temporarily helps this referred pain. The organs are normal, which would further substantiate an apprehension of ureteral block, and an investigation of the urine at this time would go a very long way towards clearing up the picture.

The *diagnosis* during an attack should not be

difficult—the ultra-acute onset, the profound abdominal misery, and, at times, agony, of the patient, allows us to consider only a few surgical possibilities—acute pancreatitis (perforating gastric ulcer), gall-stones and mesenteric thrombosis; appendicitis may be disregarded for the following reasons:

| | Ureteral Stone | Appendicitis |
|--------------------------------------|--|--|
| | Constantly in 2d, 3d decades | Any age |
| Sex | More frequent in male | More frequent in male |
| Occupation | Sedentary | No influence |
| Pain { Onset Location Duration | Ultra-acute reaches climax in 5 minutes Urogenital: kidney, bladder 2-4 hours, rarely longer | Sub-acute, reaches climax 2-4 h. Abdominal, epigastric, focal 12-14 hours, probably longer |
| Temperature | Normal, subnormal | Normal, elevated |
| Pulse | Much accelerated, soon drops | Moderately accel. more so |
| Urinary disturbance | Anuria, hematuria, pollakiuria | None |
| Vomiting | Of shock | Splanchnic disturbances |
| Belly wall, right rectus | May be rigid on right | Rigid |
| Right Thigh | Flexed if on right | Flexed |
| Bowels: Stone in Pelvic part | Tenesmus, constipation | Constipation |
| Palpitation over appendix | Not painful | Painful |
| Urinalysis | Blood, pus, crystals | Nothing significant |
| Blood count | Normal | Elevated |
| Termination | Gets rapidly better | Grows slowly better or worse |

Gall-stone colic is found in the old, flabby, fat, flatulent and forty, ureteral outbursts in the second and third decades. There would seem, then, to be sufficient clinical clues to readily differentiate these two morbid conditions.

Acute pancreatitis is sudden and violent, the pain is referred to the epigastrium and left hypochondrium; there is a persistent vomiting and a cyanosis which is very significant.

In *perforative gastric ulcer*, the pain comes on shortly after eating and is constantly referred to the left epigastric triangle; the vomiting is profound; there is no fever and no chill.

It is probably with that acute condition, *mesenteric thrombosis*, that ureteral pain may be most justifiably confounded. The history of mesenteric thrombosis is that of a very rapid process going on to a fatal termination. The onset is marked by most severe lumbar pain; at

first the abdomen is neither tender nor distended, while later both are present. Vomiting starts early and soon becomes chocolate color. The patient rapidly weakens and passes into collapse and coma. This shock and collapse is not the picture we see in ureteral outbursts, for here, although the patient is much collapsed and prostrated by the pain, it lasts but a comparatively short while, slowly passing away, and finally disappearing with no pathological lesion left behind other than the slight laceration of the ureter's mucosa.

The *treatment* is, and must be immediate and positive. The hot sitz-tub, rectal flushings, and hot pack, may offer some relief; if they fail, morphine in generous doses must be given. If given too freely at the time that the stone disengages or escapes, an acute opium poisoning case is on hand. When the attack is over, X-ray and other examinations may locate the offending body and surgical treatment may have to be instituted.

The kinks, strictures, and adhesions about the ureter can never give rise to ultra-acute outbursts of pain; the discomfort here is chronic. Urinary findings are varying, and the treatment never calls for the administration of opiates, as in ureteral colic.

In conclusion, the writer would call attention to the fact that too much weight must not be attached to the clinical location of the distress, for there are other and more desirable features to be considered in the diagnosis of ureteral outbursts than pain alone. All must be weighed, but they cannot be analyzed at length, as the condition is so severe that immediate measures must be adopted for relief.

301 West Grace Street.

TECHNIC OF X-RAY TREATMENT OF SKIN DISEASES AND CANCER.*

By C. AUGUSTUS SIMPSON, M. D., Washington, D. C.

Associate Professor of Dermatology, George Washington University, and Dermatologist to George Washington University Clinic.

Probably no therapeutic agent we know of has been recommended for so many conditions as X-ray. At first, when it was more or less a novelty, it found few medical men able to resist its call; the result is familiar to us all. Many men with little experience in the use of such a dangerous remedy, with no reliable means to

*Read before the District of Columbia Medical Society, May 8, 1912.

gauge the dose, caused case after case of radio-dermatitis and as a result the courts were full of suits. Dermatological diseases were treated before properly diagnosed and many lesions were subjected to radiation that should have received other treatment. Soon, second hand machines were flooding the market and could be bought for a song. Few of the leading dermatologists could find room for them in their offices. In fact, to read Gottheil's articles against the X-ray would make one feel that instead of a blessing it had become a curse, as he said, "who would dare use a drug when one did not know its dose; who would dare produce a dermatitis when we could not know whether it would end in a slight dermatitis or go on to intractable dermatitis and may be malignancy." But now we see the pendulum swing the other way. Now no one questions the usefulness of the X-ray as a means of diagnosis and confidence in its therapeutic efficiency is rapidly increasing.

The great difficulty heretofore with the X-ray as a therapeutic agent was that there was no reliable means by which we could measure the penetrating power of the rays or tell exactly what length of time was necessary to produce the simplest reaction and to prevent excessive irritation and destruction. We know a ray of a certain intensity will cause marked alteration of diseased cells and at the same time not affect healthy tissue. If increased beyond this point it will not only destroy diseased tissue but healthy cells as well. It is this stimulation in one case and destruction in another that we must have if we hope to have anything like constant results in Röntgen therapy. A mere glance at the classification of cutaneous diseases is sufficient to show one with a rudimentary knowledge of therapeutics that certain diseases require stronger and more stimulating applications than others, while in still others this stimulation should go on to destruction of the superficial layers of the skin as in the treatment of malignant tumors, in order to produce stimulation of the deeper and underlying tissue.

Formerly the only means of judging the penetrating power or quality of an X-ray tube was by means of the parallel spark gap, or the dangerous habit of observing the bones of the hand through the fluoroscope. Knowing the unstableness of the resistance of a tube, changing from day to day, it must be evident to all that without some standard to work with made the

results very uncertain and often times discouraging. Benoist devised a special instrument in which the rays are passed through various thicknesses of aluminum, and with this the penetrating rays can be read off on a scale attached to the instrument. This is a far more accurate means of measuring and standardizing the quality of rays than the spark gap, fluoroscope or guessing at the color in the lighted tube. Having found the penetration and quality desired, the next thing is to so regulate the third terminal of the coil that any increased density of the tube will be counteracted by sparkings through the third terminal. But finding and keeping the quality of the tube at one point is but one step in the process; the next is to find just how long the exposure can be continued before there is the first evidence of a reaction. In other words, having found the quality with the Benoist instrument, we must now find the quantity we wish. This is best estimated by the pastilles of Sabouraud and Noire which are small paper disks covered with an emulsion of platino-cyanide of barium in collodion and acetate of starch. When a dose of X-ray is sufficient to turn the color of the pastille to the color of control tint B, it shows we have enough quantity of ray to affect the hair follicles—the very first stage of X-ray irritation. This is quite in line with the demonstrated fact that the sensitive glandular tissues of the integument show evidences of irritation before the more resistant interposed epithelium.

There is a clock arrangement attached to the coil by which we may find the time it takes to change the color of the pastille to the same as the control. Say it takes twenty minutes by the clock to produce this change with a ray of a definite quantity, this means that we must expose the patient for more than twenty minutes before there is the first evidence of radio-dermatitis. Knowing that some lesions require more stimulation than others, we divide the time to produce an erythematous dose of 20 minutes into schemes of 5 minutes each, as one-fourth, one-half, and three-fourths of an erythematous dose.

The next step is to divide and select those cases which require different lengths of exposure, as some dermatoses require more rays than others—as in the case of lichen chronica simplex. We would not wish to use three-fourths of an erythematous dose or 15 minutes when

one-fourth or 5 minutes would be sufficient and so on.

I am here including the technique of some of the dermatologists of Berlin and Vienna:

Scheme (1). First day give one-third of an erythematous dose and wait eight days; then give one-third of an erythematous dose and wait two weeks, and then give one-third of an erythematous dose and wait two weeks. If not cured, give the same course over again. Under this scheme the following lesions can be treated: seborrhœic eczema of the scalp, eczema of anus and vulva, lichen chronica simplex, sycosis non parasitica, tenia of scalp or beard, dermatitis herpetiformis, lichen planus, psoriasis of the body and scalp, favus, hyperidrosis and dyshidrosis.

Scheme (2). First day give one-half of an erythematous dose, and two weeks later give one-half of an erythematous dose; three weeks later give one-half of an erythematous dose. If not cured, repeat. Under this scheme can be treated: tuberculosis cutis verrucosis, all forms of lupus, especially the hypertrophic, all tuberculous ulcers, as erythema indurata and scrofuloderm, blastomycosis and sporotrichosis.

Scheme (3). First day give three-fourths of an erythematous dose, wait three weeks and give three-fourths of an erythematous dose. Under this scheme can be treated: keloid, acne keloid, hemorrhagic sarcoma, Kaposi exophthalmic goiter before operation, Hodgkin's disease, leukæmic glands, enlarged thymus and enlarged prostate.

Scheme (4.) Give full erythematous dose, or 20 minutes. This dose and reaction need not be given in any but malignant diseases. Under this dose can be treated: mycosis fungoides, epithelioma—sixty per cent. of these can be cured if not on mucous membrane or inoperable,—sarcoma of all kinds except bone where in many cases it will relieve pain and pressure symptoms, and all inoperable cancers of skin and glands; especially is it beneficial in recurrences after the so-called radical operations for cancer of the breast. Here I do not advance this method as the best treatment for primary carcinoma or sarcoma, but in cases that have been operated on by radical methods with recurrence of the growth in the neighboring gland, or in cases that refuse operation.

The X-ray no doubt prolongs the life of many

patients. Not only does it do this, but for relieving the pain, for clearing up the offensive discharge always present in these cases and often in healing up ulcerating recurrences, I think it is a method that the surgeon should always consider in order to make the last days of his patient as bearable as possible. In basal cell epithelioma or rodent ulcer there is no question about the results with X-ray. I should say that seventy-five per cent. of these lesions are amenable to this treatment with permanent cure and with better cosmetic results than by any surgical interference.

This list by no means exhausts the field of the usefulness of X-ray. It may be true that for many of the diseases above mentioned we have other remedies that often produce cures, but there are still other lesions which fail to yield so quickly or satisfactorily by any other method. Of course there are a great many conditions in dermatology in which it is unnecessary and even harmful to employ this instrument. In fact, I consider acne can be cured by simpler means, and I have yet to find the case that will not yield to vaccines combined with local irritation and correction of any gastric and intestinal irregularities. Angioma, pigmented naevi, molluscum fibrosa, and lipoma are sometimes benefited, but here the exposure must be extended beyond the erythematous stage with the resulting telangiectasis and atrophy that is in many cases more disfiguring than the disease. Nothing yet discovered is so satisfactory in removing angioma and naevi as liquid air or carbon dioxide snow.

This paper is written particularly to emphasize the great necessity of standardizing the quality and quantity of rays delivered by the X-ray tube. For my part I think the practice of using such a dangerous therapeutic agent as X-ray in various strengths, differing with every operator, is not only dangerous to the patient, but unscientific. It is to be hoped that the X-ray societies throughout the country will make some effort to standardize the X-ray. I think all will admit that it is no more right to expose a patient to X-ray without previously determining its dose and effect than it is to administer some powerful drug like strychnine or arsenic without understanding its action and effect. The practice of describing exposures by the quality of the light in the tube (seen in many books), distance of tube from the patient.

amperage and voltage are all serviceable in helping to find the condition of the ray and the effects it will produce, but these methods in themselves are far from exact and probably do not correspond with any two operators.

The standardizing by the modified Benoist's penetrometer and Sabouraud-Noire pastilles combined with known voltage and amperage is the only definite means we have of determining the condition of an X-ray tube to my knowledge, and is used to-day by such foreign dermatologists as Sequire, Joseph and Jadassohn.

1217 *Connecticut Avenue, N. W.*

THE PRESENT STATUS OF ARSENIC THERAPY IN SYPHILIS.*

By A. G. BROWN, A. B., M. D., Richmond, Va.
Professor of Practice of Medicine, University College
of Medicine.

The status of a drug is its rating of fighting strength—not what it can do in exceptional cases, nor what it has done, but what it may be expected to do in an average case with an average dosage.

This status can only be obtained in two ways:

First, by laboratory tests made, so to speak, in the open, where all the processes of chemical change or biological action may be noted.

Second, by administration to the diseased and the efficacy judged by the disappearance, temporary or permanent, of disease symptoms.

The difference in the two methods is all in favor of the first, for, though test-tube experiment may not be borne out by therapeutic experience, it is scientific. It is the tremendous power of a fact. Whether we may make practical application of this fact is another matter. But if we cannot, yet some one will, to the world's advantage. Facts are unchanging, but man's judgment varies from year to year.

Sarsaparilla and guaiac are testimonies to this statement. It is said that at Genoa in early sixteenth century a shipload of guaiac bark sold for its weight in gold. Why? No laboratory experiments here, but the belief of men that guaiac modified the symptoms of syphilis.

Those old physicians were not fools. They thought they saw, but did not see. In the laboratory we know what and how we see, and this is the difference between arsenic therapy and other forms of treatment in syphilis.

The use of arsenic in syphilis is not new. It has always been a drug of more or less mystery. The older writers termed it an alterative, apparently meaning a drug that altered existing conditions that readjustment might take place along new lines. It has always been valuable in combating the anæmia of syphilis, and its combination with mercury in Donovan's solution is well known and deservedly used.

Arsenic, however, as referred to here is used in a different sense, for the Ehrlich products are spoken of as specifics.

The term specific has been used with different meanings. As it is popularly applied, it means a drug that has an absolute curative action on any case of a given disease. As there never has been, nor probably ever will be, such a drug, an absolute specific is an ideal. Quinine and diphtheria antitoxin are, however, generally classed as such, as are by many the preparations known as salvarsan and neo-salvarsan.

An older interpretation of the term specific is that of Butler, who says in one of his earlier editions: "These drugs are unnatural to the system, though acting specifically and in some unknown way against certain diseases or morbid conditions. They are given with a view of influencing the course of the disease itself; not for their effect on the symptoms alone. If administered for any length of time, there is danger of causing an artificial disease because of the characteristic action of these medicines which differs essentially from their remedial influence. When used as specifics they do not produce or relieve symptoms except by renewal of health or by removing either the pathological condition or the disease." He then mentions mercury as a typical specific.

Let us keep these two definitions in mind, as the status of mercury must be that gauge whereby the status of arsenic is to be determined. When it comes to decision between the two drugs, many physicians seem to be slightly sentimental. They act as though they were called on to neglect an old friend, and a few seem to be really pleased that salvarsan has not lived up to its early hopes.

However, the physician has no right to neglect a remedy because it is not a worker of miracles. The one consideration is whether it is the best remedy he can employ. Since there is only one other remedy to use, this brings us to a comparison of the two.

*Read before the Richmond Academy of Medicine and Surgery, September 24, 1912.

Mercury has been used these thousand years. It has been the bulwark of humanity and the salvation of the world, but despite its thousand years of use I venture to state that the real status of salvarsan is the more firmly fixed.

We know how salvarsan acts and why we achieve the results we see. We see our failures and know the cause of such failures, but the most that can be said for mercury is that we give the drug and expect results. How it acts and in what manner our results are obtained we do not know.

Four years of scientific knowledge is worth a million years of empiricism.

Mercury may act as a germicide, but if it does its action is of the slowest. Can we conceive of a germicide that kills after three years' use? As well consider old age a germicide!

Germicides act best in maximum doses, but here we give the moderate dose over an extended period.

No less a man than Metchnikoff says: "As syphilis is a malady which can undergo spontaneous cure, and which is nearly always very amenable to proper treatment, it ought to be very interesting to find out the ways in which a cure is effected. For this research monkeys should provide a good field, as in them syphilis is cured spontaneously in all but a few rare cases."

Levaditi has undertaken some work on this point. He has satisfied himself that the spirilla persist for a long time in primary sores, even when they appear completely healed. Many other observers have followed the life-history of the spirilla in human syphilis when treated by mercury. Some have been struck by the long persistence of these organisms when the cure seems to be quite perfect. Thus Galli, Valeris, and Lassueur found a large number in an ulcerated papule which was nearly healed, and even after 20 centigrammes of sublimate had been injected. Levaditi and Sauvage have found spirochete pallida in the blood and organs of a syphilitic infant whose mother had been treated with bin-iodide of mercury and iodide of potassium from the second month up to the end of her pregnancy. On the other hand, some workers, among them Levy-Bing, have found the spirilla disappear after mercurial treatment. *"The cause of the disappearance of these organisms has not been settled, and it is quite possible that the action of mercury is towards*

strengthening the defences of the body rather than any direct lethal action on the spirochete themselves."

This quotation is from the Oxford System of Syphilis, published in 1908, before the discovery of salvarsan, but not before the discovery and use of the Wassermann reaction. This, the complement fixation test, may throw some light on the subject.

It is a well-known phenomenon that mercury has a disturbing influence on this test. Let us take two cases, hypothetical, but easily duplicated in practice:

First, a case of florid syphilis.—Mercury is administered. Before the lesions are entirely healed we find the spirochete. A Wassermann made at this time will be almost certainly negative.

Second, a similar case.—Administer salvarsan. In a week's time no spirochetes can be found. A Wassermann in all probability will be positive.

This shows a decided difference in the action of these drugs. We know salvarsan to be a direct spirillacide. We do not know what causes the Wassermann, and we do not know the action of mercury. It is, however, highly probable that the results of the Wassermann are due to the presence in the blood of products from or due to the presence of spirochetes in blood and tissue. If this be so, we can readily understand a drug that would kill spirilla and not change this by-product.

Following out this chain it is the writer's belief that mercury could and does act as a neutralizer of syphilitic toxins. We give it to a patient over three or four years, and in all that time, by its neutralizing action, syphilis is prevented from working harm. Due to the presence of the disease, anti-bodies are constantly forming, and at the end of three years have, so to speak, assumed control of the situation.

This would explain not only the cases we mentioned, but account for the phenomena of immunity as well.

Salvarsan is a chemical whose construction is known. It has been tried in laboratory experiments and here has acted as a specific in the strictest sense.

It has been proven that when salvarsan has been brought in contact with the organism known as spirochete pallida, the death of that organism invariably results.

When we convert the arterial and venous system of the human body into one gigantic test-tube, we achieve the same results, but unfortunately the disease is not limited to the test-tube alone.

The pathology of syphilis consists essentially in the proliferation of cells, and if this proliferation be dense enough the blood supply to the part is cut off. This is that scheme of ulceration known as the chancre. Now, obviously, if the spirochete inhabits this mass of bloodless tissue, we cannot reach it by our treatment and, therefore, we do not eradicate the disease.

This cell proliferation and the cutting off of blood supply is the frontal flank and entire attack of syphilis, and with similar conditions as the chancre existing all through the body relapses are easily explained. These facts are a basis for action.

Syphilis is in practically all cases a skin infection, and is carried through the lymphatics. This being so, and glandular obstruction being present, there is a considerable length of time, perhaps two weeks, before syphilis is more than a local disease.

Time was when it was an accepted rule not to treat syphilis until the appearance of secondary symptoms, for no man, however skilful, could with certainty differentiate the venereal ulcers.

This was a good rule and served its purpose until Fritz Schaudinn discovered the spirochete pallida and converted a good rule into a crime.

It is a crime to wait until a disease becomes systemic when we can recognize it in its initial lesion. It is a crime to wait until one exposed chancre is converted into a thousand that are concealed.

This is the physician's golden opportunity. If the chancre be on the prepuce, circumcision can be done; if elsewhere, curetting and cauterization will yield the same results. We must remove that barrier of tissue too dense for blood to penetrate, and where blood goes it can be made the vehicle of salvarsan and syphilis can be cured.

The surgeon is a persistent man, and for years he has preached and begged for the early operation in appendicitis until even the laity are awake to this necessity.

No longer does the country doctor wait for peritonitis to drive him to surgical help, for now he knows that appendicitis diagnosed, the very minutes count.

Let that same cry be raised with the venereal ulcer, for syphilis diagnosed in the chancre stage can be cured. Let the hue and cry be raised of emergency syphilis and we will achieve results as yet undreamed.

1135 West Franklin Street.

REVIEW OF OPERATIVE PROCEDURES IN SAPHENA VARICOSITIES.*

By HOMER G. FULLER, M. D., Washington, D. C.

I have selected a subject for this evening's consideration that the busy medical practitioners and surgeons especially encounter most frequently. As varicosities are found in so large a percentage of people, it behooves us as physicians to be ready to handle this distressing condition wisely and most skilfully and to the utmost satisfaction of the patient, if possible.

Wise counsel on the part of the physician and co-operation on the part of the patient have saved many from the consideration of operative intervention. For, in reality, but few have to be operated on—as many severe cases are greatly benefited by attentive care to their mode of living, by change of occupation, and the wearing of suitable supports.

Varicosities of the saphena are the most frequent after those of the spermatic and hemorrhoidal veins. The reason is apparent when we stop to consider their anatomy and location—long thin walled canals, reinforced by a few valves, situated below the integument between the two layers of superficial fascia; thus we see they are lacking in supporting structures. We will see later how this anatomical deficiency is corrected by operative procedure. As to the underlying causes of this pathological condition, we first think of a congenital predisposition; second, the action of gravity unrelieved over long periods of standing; for we find this trouble often present in those who stand much—e. g., policemen and elevator men,—not those who walk much—e. g., letter carriers. Secondary to these we have to consider possible racial peculiarities and mechanical factors preventing proper return of venous blood,—e. g., abdominal tumors, pregnancy and tight garters. Gravity unrelieved for a long time causes the veins to distend; the valves thus become incompetent, and hence the walls alone have to support the long weighty column of blood. This leads to dilata-

*Read at a meeting of the Medical and Surgical Society of the District of Columbia, May 2, 1912.
For discussion, see page 358.

tion, stretching and weakening of the vein walls and, with the increase in the intravenous pressure, varicosity follows.

The ancients treated this condition either by incision or cautery. If by incision, the skin over the varicosity was divided, the vein lifted out by a hook and dissected free. The hard swollen thrombotic mass was removed and the incision healed by aid of a plaster; this was probably employed for thrombosed conditions only. If treated by cautery, the vein was first exposed through an incision, then burned with a hot iron for a distance of three or four inches, care being exercised not to burn the skin. Goulius insisted that the best and quickest method was to pass a crooked needle, armed with a wax thread, under the lower part of the enlarged vein, ligating, and then opening the vein above. Thus we see cauterization, excision, and ligation of varicose veins form three of the oldest operations in surgery.

As far back as 1352, Guy de Chauliac (surgeon to three Popes), a predecessor of Ambrose Paré, treated ulcers by washing them and the surrounding tissue with alum water, applying a thin sheet of lead the size of the ulcer and bandaging firmly. He says, "It works wonders in all ulcers and cancerous dispositions, and how often I have gained honor thereby; He knows who knoweth all things."

Heister, in 1739, objecting to these crude methods, used an apparatus invented by Dionis, a leather stocking fitting firmly to the leg, and tightened by a lace at the side. Strong linen was used for the same purpose. Dr. J. B. Murphy in the *Journal American Medical Association*, March, 1909, refers to Dionis' stocking. By its means pressure can be accurately regulated and uniform inelastic pressure given from the ankle to the knee. Dr. Murphy criticises the elastic stocking because of being elastic and, therefore, not giving uniform and continuous support, whereas, the corset of strong linen is made to fit accurately. It is made of strong heavy grade linen having a double lacer at the side and a few whalebone insertions to prevent crumpling.

This gives striking relief from leg fatigue and the process of repair in an ulcer is hastened. Murphy claims to cure any varicose ulcer not involving more than three-fifths circumference of the leg by using this leg corset:

First, he covers the ulcer with a piece of sterile gutta-percha paper overlapping it on all

sides by 1 1-2 inches; then covering with oil silk and the corset. There is no discharge from the surface of the ulcer on account of pressure. Leave this on one week. We have no odor or discomfort from secretion (granulation tissue firmly compressed gives very little secretion). In line with this treatment, of course, is the simple application of over-lapping strips of adhesive plaster.

Universal application of the operative procedure heretofore described was open to criticism because of the many cases of sepsis and phlebitis following. The cases of phlebitis caused ligation to be discontinued. Caustic potash now had its adherents. They applied this powerful chemical to the surface of the skin over the affected vein, leaving it on until it ulcerated into the vein, producing obliteration of it. The many cases of hemorrhage and suppuration following led to its abandonment. Spence, in 1882, then advised passing harelip pins under the varices, producing their obliteration by acupressure. Objection to this was the frequent production of phlebitis, and even when successful it did not serve as a radical cure, so he returned to the lace stocking and bandage.

In case of a varix at the termination of the internal saphena, benefit was derived by applying a vein truss (described by Leander) with back lever pressure placed over the saphenous opening so as to gently compress the vein at that point. This is the principle involved in Trendelenburg's operation, namely, tying the internal saphena at its highest point in order to prevent regurgitation from the femoral vein. By Trendelenburg's method the column of blood extending from the ankle to the heart is broken in half. This operation is very simple to perform, merely the tying of the saphena at the saphenous opening through a small transverse incision. This method was productive of the most fruitful results up to this time; it had its limitations however. As it was of no value for the external saphenous varices and not always successful in the internal variety, excision of more and more vein was adopted. Some operators incising from the groin to the ankle, produced a wound that was difficult to heal and followed by a long painful scar.

Phelps next advised multiple subcutaneous ligations through small punctures. Keller, in cases of long veins, exposed the distal and proximal ends, ligating them, cutting below the prox-

imal and above the distal ligature. He then passed a probe inside the lumen of the vein between these two points, tied the vein to the probe and, pulling on it, the vein is removed, turned inside out.

Babcock invented a special probe with a double acorn head tip. Sometimes branches prevent a vein being turned inside out,—that is large branches; small ones take care of themselves. Large branches show their location by a dimpling of the skin and they can be exposed and separately tied.

Mayo's operation is along the same line. Instead of turning the vein inside out, he removes the vein by freeing it from its surrounding tissues, by threading it through a ring mounted on a long probe. The internal saphena is exposed at its upper end and ligated. The distal end is now threaded on to the vein enucleator and, after steadying the skin, the instrument is gently pushed down the thigh. It meets with no interruption until about one-half way down where a large branch or two join the saphenous and prevent the enucleator passing. Hence, cut down on the ring and ligate and cut them from the main trunk. The instrument is then removed, inserted through the new incision after re-threading it with the vein, and so the whole saphenous is removed from the saphenous opening to below the knee. This works well for veins above the knee except in case of brittle veins. Below the knee, incisions over the varices and their complete removal is perhaps best.

In Schede's operation we have complete circumcision of the limb above the varices. It is excellent in the worst cases where all the subcutaneous tissue is a mass of venous naevoid tissue without any very large trunks, and where the leg loses its shape and becomes almost elephantoid. He incises right down to the deep fascia and all ascending vessels are cut and tied.

Von Wenzel went a step farther and made two scar garters, one just below the knee and one at junction of middle and lower third of thigh.

Friedel converted the Schede incision into a spiral, with six or seven turns between the ankle and knee. He employs this where the veins, after numerous attacks of phlebitis, are surrounded with so much scar tissue that excision is impossible. He incised, packed, and allowed to heal by granulation. Here it is important that the epithelium spread into the depths of the wound leaving a permanent spiral gutter.

Our object in operation is, of course, to interrupt the column of blood in the saphena veins between the ankle and the groin, above which there are no valves, and below which there is in the standing posture a great strain on the vein walls because of incompetency of the ordinary valves following dilatation of the vessels. Excising parts of vessels at different points takes the weight of the fluid column off the vessel, and the blood previously reaching the iliacs through the saphenous veins, unsupported by the strong fascia of the leg, is compelled to return from the legs by the deeper channels—under the fascia and between the muscles. Thus they get support on all sides and, in addition, the movement of the muscles helps to empty them and keep them from becoming engorged and weakened. I may say that generally speaking long incisions are no more effectual than short ones, and only prolong the operation, increase the danger of sepsis, and produce painful scars. I think, too, it is well not to operate if there has been any recent phlebitis; the existing sepsis serving to lead to such complications as thrombosis and embolism. It is likewise inadvisable to operate if the patient is suffering from varicose ulcers, (these should be treated first), until the broken area is healed or at least free from all signs of sepsis.

To be a success, the operation has to be followed by a disappearance of the varices and unattended with any complication, such as eczema, ulcer, œdema and pain. As an aid to making the operation as great a success as it should be, I firmly believe it is most important to have the patient wear a silk stocking or Murphy's leg corset for several months after leaving the hospital, to thus aid the affected limb until the deeper vessels have taken up and become accustomed to their additional work.

In concluding this subject, it is important to outline briefly how to determine which operation is preferable. To decide this, we have to consider the different physical defects present, whether we have, first, an incompetency of the trunk valves only; second, an incompetency of the trunk valves and also of those of communicating branches, or third, an incompetency of the valves of the communicating branches alone. If, as in the first, we have an incompetency in the trunk valves and we have a reflux occurring from the femoral to the internal saphenous, and examination shows that in the absence of the weight of the saphenous column the varicose distention

subsides, a simple Trendelenburg is called for. When the reflux is occurring not only from the femoral but also from communicating branches below, a total saphenectomy is required. When the reflux is occurring from the deep to the superficial veins by way of communicating branches in the leg only, including the external saphenous, then the operation may be confined to dissection below the knee.

Cases of single or scattered varices are always due to refluxes from deep veins through communicating branches, and can be dealt with by single resection of the varices alone.

The Farragut, Corner Seventeenth and I Streets.

UTERINE PROLAPSE.*

By J. THOMAS KELLEY, M. D., Washington, D. C.
Clinical Professor of Gynecology, Georgetown University School of Medicine.

This paper will deal only with those cases of prolapse occurring in women near or past the child bearing period. Frequently women who have borne many children and whose reproductive organs are in very bad condition may require a radical procedure to make them comfortable even if they may have a few more years in which they might bear children. In such women it is justifiable to do an operation which will be permanent. Noble says (Kelly and Noble, *Gynecology and Abdominal Surgery*, page 280) that nothing can be done in a curative way by any form of local treatment; even in the sense of a palliative, local treatment is usually quite unsatisfactory. I do not know of anything more difficult than a clear demonstration of the anatomy of the pelvic floor. Some authorities seem to believe that they alone know it and that it is impossible for any one else to try to fathom its intricacies; therefore, for fear some of you may discover that I do not know it, according to your conceptions, I will take it for granted that each of you knows it at least better than I do.

Prolapse of the uterus or falling of the womb in its ultimate sense is really a hernia of the pelvic floor. The uterus seldom, especially in multiparous women, comes out alone, but is accompanied by the bladder, vagina, and frequently a portion of the rectum, forming a so-called rectocele and cystocele. This is as much of a hernia as an inguinal hernia, and is allowed to

be produced by a rupture of the pelvic floor just as the intestines or omentum form a hernia by a rupture of certain tissues. Theoretically speaking, the cure of each seems to be a sewing together of the ruptured tissue, but, in case of hernia of the pelvic contents, this is not so successfully done as to always leave the organs in a perfectly normal position which will pertain indefinitely.

It is necessary then that some operation will be done which will have the same effect on the patient's health and comfort as if the pelvic contents were in a normal position. This fortunately now can be done and a permanent result be obtained, though operators differ as to the best methods necessary for such a result.

In complete uterine prolapse we have then a hernia of the uterus, frequently with the bladder, rectum, and urethra. The uterus becomes enlarged and elongated; the cervix, because of the friction between the thighs, causes large and deep ulcerations to take place.

When I was hospital interne, I visited the hospitals of several large cities and saw the most celebrated operators of that day. Plastic surgery of the female genitals had not evolved very far, and narrowing the vaginal canal by some method and occasionally doing a ventral suspension or fixation in addition was the method employed. Some of these cases were cured, but many returned after some months with the same condition of affairs as before the operation. Because not enough support was given by the vaginal operations, the hernia had returned; if a fixation had been done, the uterus would lengthen out until it again appeared at the vulva. Then, added to the regular cystocele and perineum operations, these operators seemed to think that, by shortening the round ligaments, if a uterus did not become retroverted, it could not prolapse, which seems true enough, but these organs become visible again. The broad ligaments were shortened and sewed over the body of the uterus. The utero-sacral ligaments were shortened, etc.; but all these operations had large percentages of failures, and gynecologists have been working for one which will be certain of success.

The so-called interposition operation has now been evolved to a very large degree of success. I first saw it done by our Dr. Stone, and the technique is somewhat as follows:—If the cervix is very long and ulcerated, it is amputated:

*Read at a meeting of the Medical and Surgical Society of the District of Columbia, May 2, 1912.
For discussion, see page 358.

the vagina is quickly dissected from the bladder and then the bladder from the uterus, cutting through the uterovesical ligament. The bladder is pushed all the way off the uterus and the peritoneum cut through; the fundus of the uterus is brought through this anterior incision and the bottom of the bladder is stitched to the fundus of the uterus. The fundus uteri is then stitched to the anterior vaginal wall, causing this organ to be so completely antverted as to be almost turned up-side down. If necessary, the fundus may be fixed to the anterior abdominal wall through abdominal incision.

Watkins describes an operation somewhat similar in which he uses the term transposition in preference to interposition. He says interposition suggests a change in the position of the uterus only. There is, however, a change in position of both uterus and bladder; the position of the bladder being the more important feature. He says, further, cystocele is hernia of the bladder through the vesicovaginal septum, and is generally the result of injury at child-birth, with sub-involution. After the menopause the hernia increases in size, the anterior vaginal wall is so much thinned by stitching and laceration that no definite borders of the hernia opening can be palpated.

Uterine prolapse is hernia of the uterus. The broad and uterosacral ligaments are elongated, the vagina dilated, the perineum relaxed and usually lacerated, and the cervix is diseased.

A cure of the cystocele necessitates firm closing of the hernial opening through which the bladder protruded. This is accomplished by interposition of the uterus.

The chief factor in the cure of uterine prolapse is twisting of the broad ligaments, thus very much diminishing their length. This rotation places the fundus anteriorly near the pubes and tilts the cervix up into the hollow of the sacrum.

My experience with this operation is that after a while the uterus frequently comes too low down and the fundus uteri pushes the anterior vaginal wall outside, simulating a cystocele, and these patients are never satisfied. They have a feeling of weight, and besides they see the vagina protruding. This operation cures the cystocele but there is no absolute support to the uterus.

Barton Cooke Hirst, in a recent paper, describes as operation which he claims is an operation

for prolapsus uteri without disturbance of anatomic relations and without the necessity of abdominal section. He dissects the vagina from the bladder and the bladder from the uterus up to the peritoneum, and the cervix is amputated above the internal os. A needle threaded with number 3 chromic gut is passed from above downward through the base of the broad ligament and then anteriorly through the wall of the body of the uterus and through the base of the broad ligament of the other side. By pulling this suture tense and pushing up the bladder, the laterally dislocated edges of the fascia are plainly marked. These edges are then sewed together and the operation finished by the method last described, also the perineum and posterior vaginal wall. This operation does not appeal to me.

Last Fall, I had the pleasure of seeing Dr. Baldy, of Philadelphia, operate for this condition of prolapse with cystocele and rectocele. His operation was as follows:—The uterus was amputated at the internal os through an abdominal incision, the stump being fixed in the abdominal wall with silk-worm suture; the fixation was made very low down almost to the pubes. The round ligaments and the infundibular pelvic with the broad ligaments were stitched to the posterior part of the stump. The parietal peritoneum was gathered over any raw surface of the stump and the abdominal wound closed in the usual way. The cystocele was repaired by an elliptical denudation and the ordinary perineorrhaphy for the rectocele.

He claimed that he invariably got good results. The operation was quickly done, the cervix did not lengthen out as the uterus frequently did when fixed to the abdominal wall, and by doing the fixation down low towards the pubes, the dimpling or pulling in of the abdominal wall was avoided, which sometimes occurs if the fixation is done higher up. Since that time I have done about twenty-four such operations. I found that these women, the most of whom had passed the menopause, stood the operation exceedingly well. I departed from Baldy's technique by doing the repair work on the vagina first. In some cases the cervix was large, hypertrophied and ulcerated. This was repaired rather than amputated. The uterus was as a rule small in old women and could be removed in a very few minutes; four minutes was the average. In no case was there vesical irrita-

tion, as frequently occurs after a Baldy-Webster operation for retroversion.

The advantages over the interposition operation are as follows: There is almost never any vesical irritation; the bladder is in a more natural position; there is not the feeling of weight which follows the former so frequently, and the uterus, which is already out of use, is gotten out of the way.

None of my patients had more than the ordinary discomfort after operation, and all had a good getting up. Those who have been examined after some months have a good mechanical support and all express themselves as feeling perfectly free from the previous symptoms.

1314 Fifteenth Street, N W.

Proceedings of Societies, Etc.

MEDICAL AND SURGICAL SOCIETY OF THE DISTRICT OF COLUMBIA.*

Reported by JOHN DUNLOP, M. D.

Review of Operative Procedures in Saphena Varicosities†

Was the subject of a paper read by Dr. Homer G. Fuller.

DISCUSSION.

Dr. Reichelderfer thinks that an operation is advisable when complications arise or rupture is imminent. The condition cannot become cured permanently until an operation is made. Many refuse operation and palliative treatment then comes up. He thinks the elastic bandage hard to adjust and that the elastic stocking is much easier. It is a question, he thinks, as to the best operation. He has done Schede's and considers it as good as any. He believes it unwise to promise a positive cure, as 30 per cent. recur. Should wear some support after operation.

Dr. Baker spoke of the anatomical relation of the blood vessels in mammalia and man.

That trouble is more liable to occur in the left leg than in the right is because of the relation of the bifurcation of the aorta and the vena cava, the left common iliac crossing the common iliac vein of the left side with greater frequency. The valves of the veins are so arranged for a quadrupedal position and in the erect position

the great weight of a column of blood tends to destroy the valves. As an example of the theory as to the structure of the valves was cited the valves in the intercostal veins.

Dr. Snyder thinks that the elastic stocking is of little real value. He has used ordinary horse bandage made of webbing and it has been very useful. In his experience there has never been a painful scar.

Dr. Hickling agrees with *Dr. Snyder* as to the elastic stocking; he thinks it is seldom useful. When there is a varicose condition, we should adapt the operation to the special case. Does not think ulceration is a bar to operation. The technic he employs is to clean the ulcerated area and seal with adhesive plaster before the operation. It is seldom, he says, that this dressing has to be changed. The ulcer usually heals after ten days. He thinks that the failure to tie at saphenous opening brings trouble. He has had no pain in scar except in Schede's operation with the circular incision.

Dr. Fuller, in closing agreed with Drs. Reichelderfer and Hickling as to the ulcers, but that the records show a high percentage of infection and thrombosis.

UTERINE PROLAPSE.‡

Was the subject of a paper.

By DR. J. THOMAS KELLEY.

DISCUSSION.

Dr. Stone thinks in presenting a new operation, the history of all operations leading up to it is of the greatest importance. Fifty per cent. of plastic operations formerly were failures, and it has been this result which has driven men to seek something more positive. He believes the interposition operation more nearly fills the bill. The limitations of the operation are a small uterus, which needs no amputation and will not elongate.

Operation: Uterus brought forward, and carefully sutured, with scarification, to abdominal wall and the fascia of the rami and not the mucosa. He has yet to find a bad result. There is much satisfaction with incontinence cases, they being rarely disturbed after the operation. When the fundus holds the parts up, everything goes well.

Adjournment.

‡See paper on page 356.

*Meeting of May 2, 1912.

†See paper on page 353.

Analyses, Selections, Etc.

Forbidden Food for the Epileptic.

Hansell Crenshaw, Atlanta, states that the frequency of epileptic seizures may be lessened by exclusion of certain common articles of food from the diet of epileptics. This applies to genuine epileptic attacks rather than to epileptiform fits. He fears that too often the physician is prone to neglect the prescribing of diet for his epileptic patients and that he falls back weakly upon the bromides as the only means of palliating the terrors of grand mal; while, as a matter of fact proper food and right living are, in the long run, more productive of good than bromides or any other drug.

Epileptics should eat little, if any, meat. This fact was strikingly brought out by Kemp in experiments upon 200 epileptics then under his care in the Manhattan State Hospital for the Insane. For three weeks the patients were on a strict and light vegetable regimen; and during that period not one convulsion occurred in the epileptic ward. At the end of three weeks a full meat dinner was ordered, and as a result approximately one hundred of the inmates of the ward were seized with convulsions before night. In this instance another factor besides the meat was operative—namely, over-indulgence in food. The peripheral irritation incident to overloading the stomach is often enough to precipitate a convulsion; but the rich protein character of the meat was considered to be the chief irritant and spastic.

A case reported was that of a young minister of neurotic temperament who began to have epileptic seizures shortly after his entrance into the ministry. As a result of too generous entertainment on the part of his parishioners he began to have seizures at intervals of a few weeks despite a careful course of bromides. He was sent to the country and put upon a strict diet of low protein percentage. He has ceased having the convulsions.

Of the dietetic handling of epileptics Osler has said: "The important point is to give the patient light diet at fixed hours, and on no account to permit overloading of the stomach. Meat should not be given more than once a day. There are cases in which much animal food seems injurious. A strict vegetable diet has

been warmly recommended. The patient should not go to sleep until the completion of gastric digestion."

Tea, coffee and all caffein-bearing beverages are positively contraindicated. All condiments and beverages of a stimulating nature are antagonistic to the bromides, and, therefore, conducive to seizures. Especially is this true of alcoholic beverages.

It has been found that common salt is bad for epileptics. Richet and Toulouse were the first to call attention to this curious fact. They found that epileptics get along on less bromides if fed on a practically salt-free diet. Moreover, aside from the reduction of bromides, the withdrawal of sodium chloride from the food of victims of epilepsy seems to reduce the number and severity of attacks. An absolutely salt-free regimen is not practicable in all cases because some individuals fail physically if deprived too severely of their salt. Yet, even in these cases, it is helpful to reduce the percentage of salt consumed.—(*Southern Medical Journal*, September, 1912.)

Bacterin Treatment of Aural Vertigo.

G. H. Sherman, Chicago, in detailing some of his experiences with this treatment, says it is now quite generally admitted that aural vertigo is associated with some inflammatory condition connected with the semi-circular canal and that this inflammation may be acute, sub-acute or chronic. It is also found that when such inflammation exists, variations in blood pressure have a great influence on the vertiginous attacks, causing them more frequently when the blood pressure is high than when it is low. This would indicate that in cases of arteriosclerosis the attacks of vertigo are due primarily to an inflamed condition of the aural apparatus, while ordinarily they are attributed to the sclerotic condition.

Cases of vertigo associated with suppurative and non-suppurative otitis media are commonly met with. Bacterial examinations of the pus in the early stages of this disease show that in a large majority of these cases the streptococcus is the primary infecting organism. After a rupture of the ear drum, outside contamination soon takes place and staphylococci are found. Later, they often supplant the streptococcus. From clinical observations we find that the streptococcus is an organism that may

cause an almost endless variety of inflammation and many kinds of tissue may be involved.

He has seen cases of chronic erysipelas where the inflammatory process was practically the same for months. Chronic rheumatic joints are good illustrations of persistent infective processes without pus formation. As streptococcus infections are of such common occurrence in middle ear infections, the inflammatory processes associated with vertigo can very readily be attributed to this organism.

In chronic non-suppurative otitis there is a subdued inflammation associated with inflammatory deposits and adhesions. This condition often extends into the bony structure around the semi-circular canals without pus formation, which is quite similar to the condition in the bony structure of enlarged joints in chronic rheumatism. From our present knowledge of germs and their relation to inflammation, the inference is conclusive that the inflammatory process in these cases of vertigo is due to an infecting organism. It seems entirely probable that the streptococcus is responsible for many of the conditions which produce vertigo. Streptococcus vaccine is the specific for streptococcus infections, and his experience, which now includes the successful treatment of twenty cases of aural vertigo with this vaccine, seems to conclusively show that this inference is well sustained.

This is one more illustration of the very wide scope and real therapeutic advantage of vaccine therapy. In these cases the inflammation is deep-seated, in such a position that local antiseptic treatment is practically impossible, and operative intervention is always a serious procedure. By this simple process of immunizing the patient, the trouble may be reached in any part of the body, and if it should be supposed by some that the results here are only temporary (in spite of the fact that years have passed in several of the cases) it is at least incontrovertible that results have been secured, even though the skeptic desires to call them "temporary"—the patients are pleased.—(*American Medicine*, August, 1912.)

Arsenobenzol in Rabies.

One swallow does not make a summer, yet, in some conditions, a single observation may at least command serious attention.

We take it that such is the case regarding the observation recently published in *Policlínico* by Dr. R. Tonin. Briefly related, here are the facts: A girl of thirteen was bitten on the foot by a dog supposed to be mad; the Pasteur antirabic treatment was only begun twelve days later, and before its termination characteristic symptoms of rabies developed, such as laryngopharyngeal spasms and signs of an ascending myelitis; she was then given an intravenous injection of .3 gram of arsenobenzol in 300 grams of salt solution; in a few hours the patient became quieter, the pharyngeal spasms ceased, and she was able to swallow liquids. The rachialgia, paresis of the muscles of the back and limbs, respiratory and circulatory troubles, facial paralysis, gradually yielded to hot baths and auxiliary treatment instead of progressing until the death of the patient, as has been the inevitable course. At the time of the report only a trace of paralysis of the external ocular motor remains.

Taking into account that the Pasteur treatment is only preventive, that rabies once developed invariably causes death, we deem the above report of the highest value and deserving of the greatest and most prompt publicity, in order that the treatment may be put to further tests, and that valuable lives may be saved which are bound to be lost if this treatment proves to be inefficient.—(*Editorial N. O. Medical and Surgical Journal*, September, 1912.)

Neosalvarsan.

This is the name which Ehrlich has given to a new preparation, an ingenious chemical derivative from the original salvarsan, possessing the properties of rapid and complete solubility in distilled water, of an equal if not greater therapeutic value than salvarsan and of a lesser toxicity. Schreiber (*Munch. Med. Woch.*, December 17, 1911,) quotes briefly some laboratory experiments and demonstrates the advantages of neosalvarsan, and holds that if intramuscular injections are employed it should be the preparation of choice. since, being entirely neutral, it produces but a moderate local reaction and is more rapidly absorbed. The strength of solution used for this purpose is 1.5 to 20. None the less it is sufficiently painful and sufficiently irritating to produce a wide edema, both pain and inflam-

matory swelling, however, being but transitory. As to the effect upon the lesions of syphilis, the neosalvarsan is, to say the least, as prompt as salvarsan. In so far as time has allowed, the Wassermann tests seem to show that it is equally lasting. In one case four hours after the injection of neosalvarsan the spirochætæ could no longer be found in the chancre. In all cases they disappeared in twenty-four hours. None the less Schreiber is in accord with the majority of syphilographers in believing that the chancre should be excised when this implies no ultimate deformity. The after-effects of neosalvarsan are distinctly less marked than those incident to the use of salvarsan. Very exceptionally there was some systemic upset. This was particularly marked when the drug was given to prostitutes who were treated as ambulant patients.

As to the dose, this can be safely increased. In men of ordinary stature and strength 1.5 was given; in women, 1.2, though not in the beginning of treatment. The first administration is usually 0.9 in men and 0.75 in women, the quantity being gradually increased with each dose. Children were given 0.15, infants 0.05. With the idea of procuring intensified action Schreiber's method has been to give the first day 0.9, the third day 1.2, the fifth day 1.35, and the seventh day 1.5. In case of powerful men the initial dose is 1.5. The final dose is 6.0. Special warning is given regarding care of patients suffering from severe headache or other symptoms denoting involvement of the central nervous system, since it is under these circumstances that the accidents are most frequent from the use of salvarsan. The beginning doses should be small. Neosalvarsan produced a rise in temperature only after the first injection, this lasting but a few hours. When rise in temperature develops after the second, third, or fourth dose it should be attributed to bacteria. Albuminuria has not been observed. In individual cases pronounced leucocytosis was found. Full doses were sometimes followed by the arsenic exanthemata, the latter between the eighth and twelfth day.

Schreiber says that neosalvarsan should be emptied from its ampoule into freshly distilled water, and that the containing vessel should be gently agitated for a moment until complete solution is accomplished, which is almost instantaneous. Violent shaking is to be avoided,

since it may readily accomplish an oxidation. Also, the solution should be made immediately before its use, nor should it be too hot. If a salt solution be used as a solvent it should not be over .04 per cent., the drug undergoing a change and in stronger solutions becoming toxic. As it comes in its ampoule this preparation is a yellow powder much like salvarsan. Allowed to stand in solution, or kept in the envelope not protected from light, it becomes reddish. Schreiber uses for his solution water at about the room temperature—at the highest not over 20 degrees C. Indeed, he has insisted in his use of salvarsan that solutions of this temperature are better than those which are hotter.

It would seem that in neosalvarsan there is offered to the profession a preparation safer to the patient not only because it is absolutely less toxic than salvarsan, but because its method of administration is simpler. The greater efficiency of intravenous administration is so well shown and the technique so simple that even were the neosalvarsan devoid of all irritating qualities, which it is not, the intramuscular injections would probably be used only by those of limited experience. It is a fact that a single dose of salvarsan does little else than cause temporary disappearance of symptoms, and still, in the popular mind and to a larger extent in the profession at large, there is an impression that one administration is sufficient to accomplish a radical and permanent cure. This is unfortunate for the patients, since it prevents that systematic and continued treatment which has for its end the complete destruction of all the living spirochætæ in the body. Whether such a cure shall be accomplished by repeated doses of neosalvarsan, or some other and better drug yet to be elaborated, remains unproven. The most suggestive fact in regard to the completeness and permanency of cure after such treatment is, however, adduced by the compilation of a comparatively large number of cases of syphilitic reinfection.—(*Editorial, Therapeutic Gazette, September, 1912.*)

Blood-Count in Colonic Intoxication.

In an article on the *Symptoms of Colonic Intoxication*, J. F. Binnie gives the blood-picture as determined by George H. Hoxie.

The characteristic feature lies in the staining

reactions of the white cells. The hemoglobin, total red count and total white count are within normal limits and thereby differentiate the condition from inflammations of the acute type. But the relative numbers of the various cell types differ from both the normal and the condition found in inflammations in that the total polymorphonuclear percentage is decreased and the large lymphocyte percentage increased. The typical deeply staining small lymphocytes are also decreased.

The cell that may be called characteristic of the blood-picture is the polymorphonuclear that takes both the red and the blue stains in its protoplasm—the so-called ambophilic cell. The nucleus of this cell may be lilac or deep blue, but the protoplasm is made up uniformly of large, heavily stained purple granules lying in a mauve cytoplasm. The cell is, therefore, prominent in the field because it seems darker to the eye than the other polymorphonuclears.

Such cells may be occasionally found in other conditions, but only in relatively small numbers. Therefore, when one finds these cells exceeding the total number of polymorphonuclears by 20 per cent., one should look for other signs and symptoms of colonic autointoxication.

An average picture would be: Hemoglobin, 90 to 100; red blood-cells, 5,000,000; white blood-cells, 9,000.

Differential count: Polymorphonuclears, 60 per cent.; mononuclears, 35 per cent.; mast cells, 0.5 per cent.; and eosinophiles, 1 per cent. Of the polymorphonuclears, 6 per cent., immature; 15 per cent., neutrophiles; 60 per cent., ambophiles; 10 per cent.; basophiles; and 5 per cent., oxyphiles. Of the mononuclears, 80 per cent., large forms; 10 per cent., small forms; and 10 per cent., immature. The indican and phenolsulphates in the urine are increased in quantity.—(*Journal. A. M. A.*, June 29, 1912).

Book Notices.

Text-book of Practical Therapeutics. With especial reference to the application of remedial measures to disease and their employment upon a rational basis. By HOBART AMORY HARE, M. D., Professor of Therapeutics and Materia Medica, Jefferson Medical College, Philadelphia. Fourteenth edition, thoroughly revised. 8 vo. 984 pages, with 131 engravings, and 8 full page colored plates.

Cloth, \$4.00, net. Lea & Febiger, Philadelphia and New York, 1912.

Dr. Hare's ability as a writer on materia medica and therapeutics has always been considered of a very high order, and in the issuance of this fourteenth edition he has brought to bear his ripe experience of many years to make the volume practical and useful. Part I deals with introductory matter; Part II, with the action of drugs; Part III, with remedial measures other than drugs; and Part IV, with the treatment of individual diseases. Much new text has been introduced, especially that relating to the use of salvarsan, tuberculin, and vaccine therapy, as well as a description of Bier's method of artificial hyperemia.

Editorial.

The Family Physician.

The life of the citizen is one of constant change and in some respects of progress. Our national government, through Congress, is reaching out in all directions to regulate and modify trade and political affiliations. Our States are going deeper each year into the private affairs of its people. Our cities are throwing safe guards of different kinds around her citizens by the local Boards of Health. Our school children are more carefully looked after in regard to communicable diseases. Most of them are wise provisions which can not be conducted by one person only.

But the whole tendency of this paternalism has been one of distinct disadvantage in so far as the relationship of the family doctor to the family is concerned. The family doctor, under this title, is spoken of as a person who once existed but is now as extinct as the dodo bird!

A good many causes have worked to bring this condition about. Governmental protection, as above cited, has been a distinct factor in producing a certain degree of unrest in the family by the appearance from time to time of the health officer and adviser. The profession is also partly to blame, for seldom is the regular attendant first consulted about a simple eye, ear or throat trouble, but the very reputation of the specialist acts as an irresistible magnet in promptly drawing to him the patient. The public, we say, has been educated.

Another reason is that the general practitioner

is both timid and lazy—timid in making an effort to direct his patient, if necessary, to the man he thinks most competent to treat this particular disease, “for one star differeth from another star in glory;” he is timid in not undertaking himself the treatment of simple troubles. Often he is too lazy to avail himself of the advantages by study of the excellent and simple text books now so accessible.

There come crises in the lives of all families which call for sound but affectionate advice from the doctor. The mother, son or daughter not infrequently would like to unburden their troubles, real or imaginary, on some tried and true friend in the shape of the family physician, but he is no longer to be found. Let us by tact and attention return to the old order of things, to the lasting credit and mutual benefit of both patient and physician.

M. D. HOGUE, JR.

The Association of Surgeons of the Atlantic Coast Line Railroad

Met in Richmond, Va., for their eighth annual meeting, October 15 and 16, with a good attendance. Dr. J. M. Parrott, Kinston, N. C., the president, was in the chair. The program included a number of interesting papers and a most instructive talk by the Chief Surgeon, Dr. G. G. Thomas, of Wilmington, N. C. A reception at the Country Club on the first afternoon, and a trip down James River on the second day, were the social features enjoyed. A very pleasing feature of the meeting was the presentation of a handsome travelling case to Dr. Thomas and a silver card case to Mrs. Thomas, by the members in attendance.

The following were elected officers for the coming year: President, Dr. John S. McEwan, Orlando, Fla.; vice-presidents, Drs. S. T. Nicholson, Washington, N. C.; C. E. Moore, Wilson, N. C.; H. B. Mahood, Emporia, Va.; secretary-treasurer, Dr. C. P. Aimar (re-elected), Charleston, S. C.; members of executive committee, Drs. G. G. Thomas, Wilmington, N. C.; Southgate Leigh, Norfolk, Va.; I. F. Hicks, Dunn, N. C.; W. S. Lynch, Scranton, S. C.; M. N. Stow, Jesup, Ga.; Oliver J. Miller, Sanford, Fla., and G. A. Hammond, Dothan, Ala. The next place of meeting will be decided upon later by the executive committee.

Hookworm Disease.

Investigations made in a number of cotton mills in North and South Carolina, Georgia,

Alabama, Mississippi, Massachusetts, Rhode Island and Connecticut have established the fact that hookworm disease is apparently the cause for the physical and mental retardation among the mill workers in the Southern States, rather than the lint and other working conditions supposed by many. The Southern working and living conditions are equally as favorable as those of the Northern mills, but it has been demonstrated that the larger number of operatives in the Southern mills hail from rural districts, where they have already contracted the disease, while those in Northern mills, for the most part, come from the cities or foreign countries. With the enforcement of proper sanitary conditions and treatment for those affected, it is hoped to soon overcome this so-called “cotton mill anemia” in Southern mills.

In connection with this fight for the eradication of hookworm disease, we note that dispensaries for the free treatment of those suffering from hookworm have just been opened in Ire-dell County, N. C., in addition to those in a number of other counties in that State.

Investigations in Bell County, Kentucky, under the patronage of the Rockefeller Sanitary Commission for the Eradication of Hookworm Disease, in conjunction with the State health authorities, in twenty-eight days, discovered 1,750 cases, all of which have been placed under treatment.

The Roanoke (Va.) Academy of Medicine,

At a meeting early in October, elected the following officers: President, Dr. I. E. Huff; vice-presidents, Drs. E. H. Muse and J. H. Bogle; secretary, Dr. J. C. Hurst, and treasurer, Dr. S. I. Conduff.

The Nobel Prize for Medicine Awarded in America.

It has been announced from Stockholm that the Nobel prize for medicine has this year been awarded to Dr. Alexis Carrel, a Frenchman by birth, who has been living in this country since 1905, and has been doing research work at the Rockefeller Institute for Medical Research, New York, since 1909. He received his medical education in France, and is but 39 years of age. The award was made in recognition of his achievements in suturing of blood vessels and transplanting of organs.

The Southern Homeopathic Medical Association

Held its twenty-ninth annual session in this city, October 15 to 17, inclusive, Dr. F. A. Reed, of Eustis, Florida, presiding. There were about seventy members in attendance and the meeting was both interesting and instructive. The entertainments included a luncheon at the Valentine Museum, tendered by members of the firm of the Valentine Meat Juice Company, and automobile rides.

Atlanta, Georgia, was selected for the next place of meeting, and the following officers were elected:—President, Dr. W. B. Lorraine, Richmond, Va.; vice-presidents, Drs. H. E. Koons, Danville, Va. and J. B. Griffin, St. Augustine, Fla.; secretary, Dr. Lee Norman, (re-elected), Louisville, Ky., and treasurer, Dr. M. A. Newman, Norfolk, Va.

Dr. Tom A. Williams.

Washington, D. C., announces that he has removed his offices to 1705 N Street, Northwest.

Dr. William Cabell Moore,

A native of Berryville, Clarke County, Va., and a graduate of the University of Virginia in the class of 1902, is among the newly appointed members of the faculty of George Washington University, Washington, D. C.

Drs. Wright and Bowen,

Dr. R. H. Wright and Dr. S. C. Bowen have formed a partnership and will have their offices at 316 E. Franklin Street, this city.

W. B. Saunders Company,

Publishers of Philadelphia, have issued their 1912-1913 Catalogue of Medical and Surgical Works published in the United States. It is alphabetically arranged by authors and classified under subjects.

The Virginia State Board of Pharmacy

Held its Fall examination of applicants for license in this State, in Richmond, beginning October 15. There were thirty-three applicants for full registration and eleven for license as assistant pharmacists. Reports show that a very large proportion of the former class failed to make the required standard, though some, who made a part of the examination, were permitted license as registered assistant pharmacists. There still seems to be a greater demand for than supply of good pharmacists in this State.

The Open Air School

Seems to be growing in popularity, and there is possibly much that will commend its adoption in a few years for healthy as well as anemic children. With the opening of the present school term, there were more than 200 open air schools in operation in the United States, though the first one was only opened in January, 1907. All of these open air schools of which we have information are located in the Northern States.

Mortality Statistics for 1909,

Just received, relates primarily to the deaths that occurred in the registration area of the United States during the calendar year 1909, and will be found of interest to those concerned in the compilation of vital statistics. A fact worthy of note is the rapidity with which the registration area is growing. Whereas in 1909 it consisted of only 18 registration States, the District of Columbia, which is co-extensive with the city of Washington, and 54 cities in non-registration States, the area has now increased until it embraces considerably more than one-half of the total population of the country. As legislation on the subject is either pending or to be introduced at the next sessions of the legislatures of certain States, and as health authorities and sanitary and medical organizations are co-operating with the Bureau of the Census for better results, further growth is expected shortly.

The Medical Society of Virginia

Is meeting in Norfolk, Va., for its annual session as we go to press. A full notice of this meeting will appear in our next issue.

Obituary Record.

Dr. Robert Emmett Wilson.

A graduate with honors of the Medical Department of the University of Virginia, in the class of 1910, died at the home of his parents, Mr. and Mrs. E. P. Wilson, Charlottesville, Va., October 8, aged 24 years. Upon receiving his medical degree, he accepted a position as interne at the Waltham Hospital, in Waltham, Mass., but developing consumption at about the close of his term of service there, was never able to take up the practice of his profession, which he had entered with so much promise. The interment was made in Gordonsville, Va.

THE Virginia Medical Semi-Monthly.

(FORMERLY VIRGINIA MEDICAL MONTHLY.)

Vol. 17, No. 15.
Whole No. 399.

RICHMOND, VA., NOVEMBER 8, 1912.

10 Cents a Copy.
\$2.00 a Year.

Original Communications.

CLINICAL MANIFESTATIONS AND DIAGNOSIS OF GASTRIC AND DUODENAL ULCERS.*

By JOHN STAIGE DAVIS, M. A., M. D., University, Va.
Professor of Practice of Medicine and Pediatrics, University of Virginia.

The division of this subject assigned to me does not contain anything very new or startling, unless the increased frequency of recognition of the trouble, multiplying the number of cases reported, may be so considered. The affection is becoming increasingly fashionable and bids fair to shear appendicitis and gall stones of their hitherto undisputed glory.

I shall accordingly be obliged to content myself with a brief resume of the symptomatology and the circumstances under which the signs may be manifested as a pretext for my eminent associates to expatiate on the triumphs of treatment.

In reviewing the literature I was struck with the direct contradictions in many cases between observers of the first rank and experience in regard to what would seem to be simple and readily ascertained matters. Repetition too is sometimes unavoidable, but will be reduced to a minimum and a few inconsistencies will unfortunately be met with. My obligations to the great lights on the subject are obvious and hereby gratefully acknowledged.

I. We take up first *Gastric Ulcer*, originally described by Cruveilhier in 1835.

According to Turck and Einhorn, infection especially from ambitious colon germs in the stomach may be a responsible factor, together with abnormal contractions, making pockets in

the mucosa for irritating accumulations, or temporarily congesting and strangulating a spot on a ruga in persons with high acidity and anæmic propensities, thus permitting self-digestion. These pockets too may be due to sagging from pressure or traction of neighboring organs. Acute ulcerations have been experimentally produced by injecting an extract of normal stomach of one animal into another, showing that the process was one of auto-digestion and this attempt again neutralized by keeping the stomach of the second animal highly alkaline. Extremes of temperature in food and traumatic influences in certain vocations, such as cooking, shoemaking, tailoring and swallowing irritating dust, may cause abrasions, but the result is not a real ulcer in that such lesions heal rapidly as after surgical operations.

Fracine says that acute ulcers rarely become chronic, which are so originally and usually associated with some other chronic trouble, such as nephritis or tuberculosis. The most frequent seats are the pyloric region and lesser curvature (90 per cent.) and there is far oftener only one lesion (95 per cent.), though a dozen or more have been reported, especially in the acute toxic forms, with 35 as a maximum.

The most conspicuous symptoms are the epigastric pain or discomfort at a more or less constant time after eating, with acid eructations, vomiting and even hematemesis. Taking these in more detail we shall first consider—

1. *Pain*. This comes on from one to three or even as much as five hours after eating—the last being rather a hunger or premeal pain. Some foods increase the suffering, but soon relief is experienced, especially in early stages.

This "food ease" is shorter as the ulcer gets older and larger. The longer the food gives relief the further down the ulcer is situated. The pain is gnawing, burning or boring in character, but may be altered in any case by changes

*Read before the forty-third annual session of the Medical Society of Virginia, at Norfolk, October 22-25, 1912, as a part of the Symposium on Gastric and Duodenal Ulcers.

in size and situation of the lesion, as well as complications. The earlier the pain occurs after eating the higher up in the canal the ulcer is supposed to be. One of our cases experienced immediate pain on swallowing and there was found at autopsy, amongst other things, an ulcer of the œsophagus just outside the cardia with a prune seed embedded in it. The pain may be associated with, or replaced by gas, distress or sour eructations which recur periodically for months or years. In connection with the pain there is often epigastric tenderness, generally either in the midline or slightly to the left, rarely extending over two inches in any direction. This tender spot must be constant in position and capability of demonstration. There is also sometimes a dorsal pain, or more frequently, tenderness beside the vertebral column, between the tenth and twelfth ribs on either side. These sensitive points had best be brought out by tapping or very light pressure. Boas has devised an instrument for the purpose and states that, if pain is not evoked by a pressure of from 4 to 8 pounds on the epigastrium, ulcer can be excluded, a practice and conclusion both denounced by Einhorn.

2. *Vomiting.* This is not an early symptom. It occurs one to two hours after eating, when pain is at its worst and may relieve the suffering. The material consists of watery fluid, mixed with food, and even pure gastric juice, which does not always show an excess of hydrochloric acid. Authorities differ as to whether mucus is present or not. It has not been noted in our cases.

Regurgitation usually precedes vomiting and is responsible for the heartburn. The fluid is not excessively acid for gastric juice, but seems so in the inhospitable œsophagus. It is rather a *hypersecretion* than a hyperacidity, but may corrode the teeth in protracted cases.

3. The *appetite* is usually good, but may be later restrained on account of the pain produced, or it may be destroyed, when pylorospasm, stasis or other complications are met with.

4. *Hemorrhage* is a late symptom and ought not to be awaited. It has to be considerable to produce hematemesis or even melena, but occult blood can be detected in both stomach and bowel contents long before the patient gives a history of hemorrhage, which is by no means always

bright red, as text-books are still inclined to insist. It occurs in about one-fourth of the cases, and in 90 per cent. of these cases spontaneously. Fatal bleeding is met with in from 4 to 10 per cent. of cases and in over half of these the splenic vessel is involved.

5. *Constipation* is usual and is to be attributed to impaired gastric and intestinal peristalsis.

6. The *stomach contents* do not show invariably the hyperchlorhydria formerly presumed. Three-fourths of the cases fail to manifest it. According to Friedenwald it is more usually normal. The same observer says that hyperacidity is more frequent in males and subacidity in females. In recent ulcers and those accompanied by recent hemorrhage acidity is high, while in chronic forms it is low.

7. *Pylorospasm* and *food retention*, which need not be gross obstruction, but showing small particles of food eight or ten hours after meals, are met with later. This may be taken to indicate the time of beginning cicatrization and bring surgical therapy prominently to the fore, though available literature is very silent as to any reliable sign of a period for the commencement of induration.

Visible gastric waves sometimes occur like those of hypertrophic stenosis of young infants and help to locate the lesion as near the pylorus. Mucus is usually absent. Free hydrochloric acid and leucocytes in a fasting stomach are almost diagnostic of ulcer according to Billings.

8. *Anaemia* is often marked.

Some cases of ulcer are entirely latent, being only discovered at autopsies or when some serious complication sets in. It is a long drawn out affliction, a case of forty-five years' duration being reported, with twelve and one-half years as an average at the Mayo clinic. As to sex, the male predominates, despite dogmatism to the contrary and the average age is forty-five years.

The *complications* are few but dangerous.

1. *Perforation* which is recognized in acute cases by violent pain, shock and rigidity. Sometimes pain precedes the accident and time is given for the formation of adhesions to neighboring organs in which abscess may consequently develop. These may produce fistulous openings into hollow viscera or into the thorax

from which aspiration may recover pus and food particles. This is sometimes called chronic perforation, and gives a typical radiogram (with an air bubble).

The acute accident is more apt to happen in ulcers of the anterior wall where there is no opportunity for conservative adhesions (though Musser reports a case in which this occurred), and especially in duodenal ones. It may be the first and final symptom in a fulminating process.

2. *Cicatricial contractions* too may cause stenosis of the pylorus, hour-glass deformity or other analogous changes. Perigastritis may be set up and by its traction on the stomach cause persistent pain, independent of taking food and even irregular vomiting.

3. *Cancer* is one of the most serious complications, and arose on the site of a previous ulcer in over 60 per cent. of the cases of the Mayo series.

4. A form of *pernicious anaemia* is reported in this condition and ascribed to the starvation and debility entailed.

5. A *polyneuritis* with pain simulating that of the gastric crises of tabes was announced as a rare complication of gastric ulcer a year ago abroad.

II. The second part of my subject deals with *Duodenal Ulcer*; first reported by Travers in 1817. In the Mayo series it was more frequent than the gastric type.

This arises under about the same conditions as the gastric variety, as this viscus above the papilla is embryologically identical with the stomach, but there are a few additional circumstances that seem to predispose to this locality. It is a relatively unprotected region and irritants in concentration (especially alcohol) are said to have peculiar designs on it, reaching it easily, so that many of its subjects are dissipated persons.

The influence of extensive surface burns is only seen when septic processes occur in the affected area. Uremia by attempted vicarious elimination of urinary solids and hemorrhagic diseases of the newly born with thrombosis of the umbilical vein may have some influence. These latter are rather acute, seen oftenest in females and manifested by sudden hemorrhage or perforation.

Chronic Duodenal Ulcers are of long dura-

tion, met with most frequently in males, between the ages of twenty-five and forty-five years, as anatomical differences make their upper gut harder to empty than that of women.

Here the pain comes on more than two hours after eating and oftener five hours which may wake the patient from sleep. It is of the same gnawing, burning character and may be most pronounced when lying on the right side.

Pylorospasm is frequent but vomiting is rare. The dorsal point of tenderness is not so often observed as in the gastric variety.

The attacks show the same periodicity and complete intervening abeyance as stomach ulcer, but are more often precipitated by cold, wet, hasty and indigestible eating as well as worry and overwork. Interruption of meals, especially in doctors, may have some influence by starting up the secretion and then disappointing it.

Moynihan says that attacks are confined to cold weather. The "hunger pain" comes on when more than half the contents of the stomach have entered the duodenum. Recurrent severe so-called hyperchlorhydria is duodenal ulcer according to this Englishman, and does not need, though it welcomes as corroborative, for diagnosis, local right-sided epigastric tenderness and rigidity.

In later stages, pylorospasm may cause gastrectasia but the object is to protect the ulcer and prevent the patient from taking too much food. In one of our cases the eructations were strong of sulphuretted hydrogen and the colon bacillus was found in the vomitus.

Sensible hemorrhage is a very late sign and should be forestalled. It occurs in one-third of the cases and is far more serious than in the gastric ulcer, being often fatal. The danger may be intimated by a considerable exacerbation of symptoms and rigidity, the latter betokening also perforation, which is more common here than in the stomach.

The sour regurgitation in duodenal ulcer is due to a protective spasm of the pylorus and does not usually show any excess of hydrochloric acid, but rather oftener a deficiency. Ulcers of the pylorus and neighboring duodenum cause obstruction and stasis.

Of complications, perforation, adhesions with hour-glass deformities and malignancy may be mentioned, but the last is very rare and practi-

cally confined to ulcers invading the pylorus. Jaundice has been reported when the papilla becomes involved.

At the University of Virginia Hospital we have had a series of forty-five cases. Thirteen were listed as hyperacidity and of the remaining thirty-two there were seven duodenal and twenty-five gastric ulcers. Thirty-three were in males, and twelve in females. Only three were in colored people, of whom two were bright mulattoes. Four died, two of whom (both males), owed the fatality to perforation which had occurred before admission and was the cause of seeking aid. Eliminating these, our mortality was 4.5 per cent. Twenty-eight were reported as well (ten under surgical and eighteen under medical treatment) and the remainder as "not treated." This may mean, of course, only latency, as time enough has not elapsed to be sure. The ages varied from eighteen to sixty-five, both extremes being in white men, and the average was thirty-nine years.

III. *Diagnosis.*

"A" *Constructive.* Attacks of digestive disturbance extending over years with periods of complete relief accompanied by acid regurgitation, pain, hemorrhage and finally stasis, strongly suggest gastric ulcer. Recurrent severe hyperchlorhydria is duodenal ulcer, says Moynihan, as quoted above.

Cases of *hyperacidity* that do not yield promptly and permanently to treatment are probably ulcers. Rest in bed will quite promptly triumph over a pure neurosis, while an ulcer will not be affected by such means.

Diagnostic factors are time of the pain, both before and after meals, its periodicity and means of relief by food, alkalies or irrigation, promptly at first, and then more slowly, until such measures finally cease to act.

The lesion can be only vaguely located by relief or exaggeration of pain on certain attitudes, by the time of its appearance, i. e., immediately after eating suggesting the cardia, one hour later the middle of the stomach, and two or more hours later the pylorus or duodenum. The dorsal is the most comfortable attitude, especially with the head lowered.

The thread-impregnation test may be invoked for this purpose. It is performed as fol-

lows:—have the patient swallow a silk thread to the extent of 75 cm. Keep in all night and withdraw. The blood stain will locate the distance of the ulcer from the lips. This method is said to be especially applicable to lesions of the œsophagus, cardia, lesser curvature, pylorus and duodenum, but not to those of the fundus or greater curvature.

The pain of duodenal ulcer is later after eating than that of the stomach, and melena exceeds hematemesis. It is also said to be relieved by wine which causes reflex pyloric closure and so protects the sensitive area, but this agent aggravates the pain of gastric ulcer. I have seen such a case this past summer.

Direct illumination and inspection by the gastroscope is one of the possible, but not popular methods of recognition. It might be invoked before resorting to surgery with timid subjects, (though the instrument I believe more dangerous than the knife), if it were necessary to exclude a simple erosion.

The X-ray, too, may be called upon, as bismuth clings much longer to an ulcer than to the normal stomach wall. The lesion can then be recognized and located, as normally the metal will be removed in four hours so that a sharply localized shadow persisting six hours would strongly suggest this trouble in connection with other signs. This affords a way of watching the progress of the disease. According to the Germans the shadow persists only when the ulcer perforates or is very deep, but there is often a dimple on the opposite side of the stomach in even the smallest ulcer. The fluoroscope will show the stoppage or deflection of peristaltic waves at the seat of an ulcer of the stomach, and, in the duodenum, a change of the intermittent irregular jets of chyme into a slow oozing. Displacement of the pyloric portion upward and to the left is suggestive.

The *mucous erosions* of Dieulafoy probably arise from chronic gastritis, usually toxic, are seen more often in young women and are especially prone to bleeding. The membrane literally "weeps" blood, which is sometimes called gastrostaxis. Here pieces of lining membrane and mucus can be recovered from the fasting stomach. They do not eventuate into the chronic indurated ulcer.

The cases of hematemesis in chlorotic girls,

more often reported twenty years ago, belong here. They are of favorable prognosis, seldom perforate and yield to treatment.

"B" *Differential*. The stomach is usually the seat of most reflex sensations from the alimentary organs and there are many causes of gastric discomfort and hematemesis, but time will permit reference to be made only to those regarded as more or less easily confused with our subject. These are gastralgia, gastric cancer, gall stones and appendicitis more frequently, and pancreatitis, pneumonia and pleurisy more rarely.

1. *Gastralgia* is distinguished by the general nervous symptoms, variability of appetite, absence of hemorrhage and relief of pain on rest and on electric applications during digestion (Leube).

2. *Cancer*. 79.5 per cent. of these arise in old ulcers (Mayo). This is more common in advanced life. There is more blood in the vomitus and stools than in ulcer. There is more gas and less relief by eructation, taking food and vomiting than in ulcer. The course is short and progressively downward as contrasted with that of ulcer which is prolonged, fluctuating and often has periods of apparently perfect health. The appetite is very poor and complete anorexia may supervene. The peculiar aversion to meat is commented upon by all text-books. Cachexia becomes marked. The X-ray shows a ragged shadow in cancer but a smooth one in ulcer after a bismuth meal, and when inoperable, the hook-like shape of the stomach is lost. Pylorospasm is more frequent in ulcer than in cancer which rather tends to relax the outlet into the duodenum unless, by its mass physical obstruction is produced.

Gastric analysis shows diminished or absent hydrochloric acid and the presence of lactic acid, Oppler-Boas bacilli and disintegrated blood resembling coffee grounds. There may be food remnants and very offensive pieces of disintegrating tissue. The glycytryptophan test too might help in a doubtful case.

The quality of gastric contents in benign stenosis varies with its degree, but in the malignant cases it is the same no matter how slight the obstruction.

3. *Gall Stones*. Here the general health does not suffer until complications develop. The pain in gall stone colic is more agonizing, inde-

pendent of eating both as to causation and relief and seasonal recurrence. It radiates to the right shoulder and is often attended by chilly sensations. Jaundice too is common but occurs only in ulcers involving the duodenal papilla, as previously stated.

Charcot's intermittent hepatic fever may supervene on infection. Vomiting gives no relief and there is sometimes a spasm of the diaphragm, which is absent in ulcer. Early duodenal ulcer is often mistaken for gall stones, while chronic cholelithiasis is as frequently confused with ulcer of the duodenum (Graham).

Hemorrhage is very rare in gall stones, present in about one-fourth of the cases of ulcer and two-thirds of cancer of the stomach. There is no distinctive gastric analysis. The patient's disposition is said to be unchanged with gall stones, hopeful in ulcer and despondent in cancer.

4. *Appendicitis*. Confusion with this trouble is facilitated by the gravitation of discharges from a duodenal perforation into the right iliac region, as has been proven by observation and experiment. This concentrates attention on the appendix region and has deceived the elect. The high leucocyte count and classical local signs are, however, usually sufficient for differentiation.

4. *Pancreatitis* is rare and is to be distinguished by the slightly different locality of the pain and tenderness, as well as the fatty stools and urinary disturbances.

5. *Intrathoracic troubles*—pleurisy and pneumonia—can generally be excluded by a careful physical examination. They are usually attended by higher temperature, more rapid respiration and, even in the absence of jaundice, a slower pulse than is observed in the course or complications of gastric or duodenal ulcer.

THE MEDICAL TREATMENT OF GASTRIC AND DUODENAL ULCERS.*

By J. GARNETT NELSON, M. A., M. D., Richmond, Va.
Professor of Physical Diagnosis, University College of Medicine.

But little has been added to our knowledge of the treatment of gastric ulcer during the past few years, and it does not seem likely that much further progress will be made until the

*Read before the forty-third annual session of the Medical Society of Virginia, at Norfolk, October 22-25, 1912, as a part of the Symposium on Gastric and Duodenal Ulcers.

etiology, the possibly various etiological factors, are made definite and clear. The present generally accepted belief is that erosions and injuries frequently occur without ulcers, and that for some entirely unknown reason some of us now and then digest portions of our own stomachs. So, then, we must accept the idea that an ulcer is not merely a loss of substance, but a definite entity classified for the present in medicine along with that mass of material still open to experiment and study. For the present, the chief bewildering question may be exemplified as follows:

Why should the incision, needle wounds, and ligatures of a gastro-enterostomy heal beautifully and promptly in a stomach previously having one or more ulcers that would not heal at all? Why do not numerous ulcers develop at the site of the operation? We have, perhaps, the same chlorotic female, or arterio-sclerotic male, the same blood, the same digestive agents, the lost or injured epithelium in both, but vastly different results. I believe it likely that the ultimately proven etiology will be a neuritis, a sort of isolated herpes, or a *definite microbic invasion*. For the present the one universally accepted idea is that of a localized diminished resistance, whether an embolus, or lost anti-body activity, or something else, being, immaterial. In spite of our confusion as to the etiology, numerous experiments and a host of clinical records have given us data that entitle our present methods of treatment to more or less faith.

The title to this paper of itself asks two questions, Is the medical treatment of gastric ulcer right and proper? And if so, what is it?

The first question seems to have been answered. It is undoubtedly true that a large percentage of ulcers get well if properly handled. The old saying "once an ulcer always an ulcer" must be discarded, and the diagnosis being confirmed, we may enter upon our treatment with a reasonable hope of certain success. In making a positive statement that almost every case of acute, non-perforating gastric ulcer should be excused from surgical interference, the fact that quite a number of wise men of extensive experience think otherwise, is not overlooked. This may not be argued here. It can only be said that a review of the reports from various surgeons, physicians, hospitals and clinics in

this country, and especially abroad, leads the author of this paper to the opinion expressed above. However, we must admit that at least three classes of ulcer belong to the surgeon without argument:

1. Chronic ulcers that resist medical care.
2. Cases with hæmoptysis following upon a prolonged dyspepsia.
3. Cases with persistent recurring hemorrhage.

Granting then, that the medical treatment is usually the correct one, the second question, namely, what is this medical treatment, remains to be answered.

There is no rule of thumb to be followed. On the contrary, individual cases must be treated as such, and frequently the individual having the ulcer must be treated rather than the ulcer itself—the host rather than the guest. An anæmic patient must be relieved of his or her anæmia; a dilated heart with passive congestion of the stomach must be restored to its function; a tubercular patient must not die of starvation while an ulcer is being cured. This idea seems to have been the keynote to Lenhart's line of thought when he upset accepted teachings by feeding certain ulcer cases by the stomach fairly freely from the beginning. Although individual cases must be treated as such, these individuals more or less regularly fall into certain classes or groups, and in order to discuss them intelligibly may be so arranged. The actual condition, size, number or location of one or more ulcers may only be inferred. Consequently, any number of gastric ulcer cases must be classified according to probable conditions, arrived at by certain subjective and objective symptoms, as pain, tenderness, vomiting, fear of food, blood in the vomitus or stools, extensive hemorrhage, emaciation, etc.

All cases of ulcer that are otherwise in fairly good general condition may be divided into three classes.

1. Those having no history of hemorrhage during the past three months.
2. Those with hemorrhage during this time.
3. Those with hemorrhage now.

Of the first two classes none will come under observation without a history of existing symptoms such as pain on taking food, epigastric tenderness, or persistent vomiting. The pres-

ence of these symptoms with the history of hemorrhage compels us to treat the ulcer as still raw and unhealed. Practically our whole armamentarium consists of the regulation of diet, rest, salt solution, purgatives and opium, bismuth, silver nitrate, adrenalin and some acid neutralizer as soda or chalk. Of these rest is the most important. It seems clear that more ulcers get well in less time if the stomach wall is still and the secretion of hydrochloric acid arrested. If we attempt to estimate the influence of hydrochloric acid on ulcers, we wind up with three facts well enough proven to be axiomatic.

1. Ulcers occur wherever the gastric juice is normally present.

2. The presence of hydrochloric acid retards the healing of ulcers.

3. An excess of hydrochloric acid is not always found, but on the contrary, a large percentage of ulcers are found where the amount of total acidity is below normal.

So, then, the patient must be put to bed, and kept in a recumbent position as still as possible. All food and liquids by mouth must be forbidden for at least six days, if possible. The bowels must be cleared by a daily enema. There are, however, not many human beings from whom we may safely withdraw all nourishment for so long a period as six days. It is well established that rectal feeding is worth while, nor is the predigestion of food necessary. The natural reverse peristalsis of the large bowel makes the use of very long tubes unnecessary. The only technique required consists in an elevation of the hips, the insertion for about six inches of a moderately stiff rubber tube, and allowing the food to pass very slowly into the bowels, taking about one-half hour. Rectal feedings should be given at about six hour intervals, the bowel being thoroughly cleansed at least once a day. Ewald's directions cannot be improved upon: forty (40) grammes of wheat flour are mixed with one hundred and fifty (150) cubic centimeters of lukewarm water or milk, and one (1) or two (2) eggs with about three (3) grammes of table salt and fifty (50) to one hundred (100) cubic centimeters of a fifteen (15) to twenty (20) per cent. grape sugar solution are added. The nutritive value of this mixture amounts to about four hundred

and fifty calories. The caloric value of sugar is well known, but we must remember that concentrated solutions of sugar irritate the rectum very easily and may be quickly expelled, and that cane sugar is less irritating than grape sugar.

Guided by the knowledge that even rectal feeding stimulates the formation of hydrochloric acid in the stomach, and remembering the fixed law that the presence of hydrochloric acid retards the healing of ulcers, we are compelled to make an effort even during these first few days of treatment to retard its formation, neutralize what is formed, or where oral feeding is advisable, engage it in digestive activity. This can be done with a very satisfactory degree of certainty by the use of either silver nitrate, bismuth, or an acid neutralizer, preferably chalk. The silver nitrate should be given in one-quarter (1/4) grain pills or in solution. The nauseating effect of silver may be relieved by the addition of a few drops of peppermint water, and the metallic taste by rinsing the mouth with weak salt solution. A highly recommended procedure, especially if vomiting is troublesome, is daily lavage with 1:1000 silver nitrate solution. However, the passage of the tube by those unskilled in its use is too dangerous to be generally advised.

Bismuth is perhaps more popular than silver nitrate. The carbonate is advised in preference to the sub-nitrate or subgallate. Large doses amounting to three or four hundred grains daily must be given. The fact that bismuth and silver nitrate cause an increase in the amount of mucus in the stomach is worthy of note, it being proved apparently that mucus of itself to some extent protects the ulcer. Constipation with large doses of bismuth need not be feared. On the contrary, the effect may be quite the reverse.

Dr. A. L. Gray, of Richmond, tells me that in making a skiagraph to observe the position, size, or movements of hollow viscera, he does not hesitate to use as much as one-half pound or more of the subcarbonate of bismuth, and that no appreciable effect whatsoever has been observed, but that the subnitrate may not be so used, as a number of cases of poisoning have been reported. These observations may lead us to use larger doses of bismuth in ulcer cases.

Instead of the silver nitrate or bismuth, chalk may be used, acting as an alkali in the presence of hydrochloric acid and for the time being sidetracking the stomach as a digestive organ. Coincident with the rectal feeding, one dram of prepared chalk should be given in a little water, repeating the dose every one-half hour till two more are taken. So much, then, for the treatment of the first two of the groups that we arranged according to their history of hemorrhage.

The third group, that with existing hemorrhage, must be further divided according to its severity and its effects on the individual, such as anæmia, weakness, shock. Three classes are to be considered:

1. Those with slight hemorrhage, and little or no secondary effect.

2. Those with considerable hemorrhage and marked weakness.

3. Those with severe hemorrhage and profound shock.

The first class should be treated along the same lines as the two non-hemorrhagic groups, that is by the abstinence cure. In the second group a modified Lenhartz treatment is indicated. The general principles involved are—

1. Continuous administration of concentrated albuminous food.

2. Rapid increase of nourishment.

3. Absolute rest in bed with an ice-bag applied over the epigastrium.

Fresh eggs are the sheet anchor—three on the first day, raw and beaten up; one being added each subsequent day until eight are taken daily. Later they may be soft boiled. Sugar is added to the egg on the third day, gradually increasing the amount from thirty (30) to fifty (50) grammes. Ice milk must be given in extremely small amount, beginning on the first day of treatment with two hundred (200) cc., and adding one hundred (100) cc. daily up to one (1) liter. On the sixth day, thirty-five (35) grammes scraped tenderloin is given raw. After several days, rice, toast, cereals, butter, etc., are gradually added.

Among the benefits of the cure, Lenhartz specially cites:

1. The short duration of treatment.

2. The pain is relieved and opiates and nar-

cotics are never required after the first four or five days.

3. Vomiting ceases.

4. The number of recurrent hemorrhages is far less than by any other treatment; of one hundred and six (106) cases, only four (4) showed recurrence.

5. Quick return of strength and working capacity.

6. The good effects are lasting.

In any event, whether the old total abstinence treatment or the modified Lenhartz method is followed, at the end of several days of treatment we are feeding by the stomach, using milk, eggs, butter, cream, olive oil, barley, rice, oatmeal, gruel, toast, crackers, purees of peas or beans, prunes, alkaline mineral waters, etc.

The bismuth, silver nitrate or chalk must be continued for several weeks. Alkaline mineral waters may now be used freely, especially the purgatives, such as Carlsbad, if indicated.

In the third division of hemorrhagic ulcers, that is where we have profuse hemorrhage with profound shock, we have two objects in view, one to combat the shock as in any other internal hemorrhage, and the other to arrest the flow of blood. The first opens too broad a field for us to enter upon here. Suffice it to say that our main dependence lies in salt solution intravenously and bandaging the extremities. Undoubtedly the best chance of arresting the hemorrhage lies in morphia. We should give one-quarter grain doses hypodermically, and repeat it according to indications. Meanwhile, twenty minims of a 1:1000 solution of adrenalin should be given by mouth every hour. Most excellent results are reported from the use of gelatin. One tablespoonful of a ten per cent. solution given by mouth, or a carefully sterilized two per cent. solution hypodermically. At the same time an ice-bag or ice compresses are applied over the stomach. If these measures fail, the patient of necessity passes from our hands to those of the surgeon.

In conclusion, it is proper to state that in the preparation of this paper I have used the reports of other men so evidently, that it has not been thought necessary to make specific references. To any one interested, I would especially refer to the works of Boas, Ewald, Osler, Robson, Mayo, Moynihan, Leube and Lenhartz.

317 N. Harrison Street.

SURGICAL TREATMENT OF GASTRIC AND DUODENAL ULCERS.*

By LOMAX GWATHMEY, M. D., Norfolk, Va.

Ex-President Medical Society of Virginia.

The surgical treatment of gastric and duodenal ulcers is first appropriately approached by a rapid resume of the indications for surgical interference.

As it is estimated that perhaps 70 per cent. or even 80 per cent. (Fenwick) of acute ulcers recover under medical treatment, and that only a small per cent. of acute ulcers become chronic, the consensus of surgical opinion is that patients should primarily carry out a properly defined and executed medical course before being subjected to surgical operation. It would not seem inappropriate to emphasize our opinion that such cases are not subjects for office treatment, but require hospital care or carefully organized nursing at home with a strictly defined regimen.

Characteristic acute exacerbations of chronic ulcer must neither be classified as, nor confounded with acute ulcer, whose symptoms have arisen for the first time, or after the elapse of so long a symptom-free interval that an entirely fresh ulceration may be reasonably predicated. Medical treatment or no treatment will quite commonly witness such symptomatic recessions in chronic ulcer with the claim of a cure, and from such occurrences much confusion has arisen. A knowledge of the symptoms, coupled with carefully taken histories, will differentiate between the really acute and the acute exacerbations of chronic cases and enable the physician to properly advise his patients as to their medical or surgical status.

The dangers of acute perforation while under medical care should be constantly borne in mind, as this accident has been frequently noted by Mitchell¹ and others. If in the course of medical treatment there should be a lack of prompt subsidence of symptoms, or if increasing pain, tenderness, and rigidity indicate a progression toward acute or subacute perforation, a surgical consultation should at once be held. This position has not been forcefully enough stated, and yet is comparable to the threatened rupture of an appendix under observation, where the subsequent radical surgical cure is made incomplete

by the necessity for drainage, and, in the case of perforated ulcers, an indicated gastro-jejunostomy is negated by shock or a beginning peritonitis, as will be later more fully discussed.

Acute perforation is, of course, strictly a surgical affair, for, while a few cases recover unoperated, the vast majority go on to a rapid and painful death. Subacute perforation with adhesive closure of the opening by omentum or adjacent viscera is also an indication, as a rule, for immediate or late surgical aid.

Acute hemorrhage, contrary to the opinion of earlier writers, is not an operative indication except in some instances. The condition is usually easily controlled and the case may then go on to a perfectly satisfactory medical cure. Should it be deemed expedient to operate for uncontrollable hemorrhage, Moynihan and others advise against seeking the bleeding point, but advocate immediate gastro-jejunostomy, which will control the situation. Bleeding points in the absence of solitary ulcers are hard to find and difficult to control and much valuable time may be fruitlessly expended. Besides, we have no assurance that the hemorrhage is from one point, which, taken with the macerated and easily traumatized gastric mucosa, makes the procedure seem doubly inexpedient.

Repeated hemorrhage in chronic ulcer demands operation.

Chronic ulcers with recurring symptoms are surgical affections. The weighing of factors for and against operation in chronic gastric and duodenal ulcers is steadily demonstrating the increasing value of surgical measures and discountenancing indefinite medical treatment. The most conservative surgeons, as Kuttner, Lockwood and others, would resort to operation only after two or three medical courses had failed to give permanent relief. The plea for earlier operation is voiced by Hall² in his excellent summary, which I quote in full. The advantages of medical treatment are:

"1. Avoidance of immediate operative and anesthetic dangers.

"2. Avoidance of possible vicious circle, recurrence of jejunal ulcer, ventral hernia, post-operative adhesions, etc."

Against these advantages, however, he notes the following dangers:

"1. Likelihood of failure of medical treatment.

*Read before the forty-third annual session of the Medical Society of Virginia, at Norfolk, October 22-25, 1912, as a part of the Symposium on Gastric and Duodenal Ulcers.

"2. At least an even chance that the patient will relapse if temporarily cured.

"3. Dangers of development of pyloric stenosis through presence of an active ulcer at that point, or spasm caused by its irritation, or cicatricial stenosis following its healing.

"4. Danger of hemorrhage or acute perforation.

"5. Danger of development of cancer on the base of the ulcer. * * *

"6. Danger of adhesions, which cripple the action of the stomach, obstruct the gall-passages, produce serious pain and often require late operation.

"7. Dangers from a troop of late complications of slowly developing perforation, amongst which I have encountered peritonitis, subphrenic abscess, empyema, pyopneumothorax, pneumonia, perforation through the lung, septic pericarditis, mediastinitis, pancreatitis, suppurative processes about the liver and gall ducts and general sepsis. * * *

"8. The development of such a condition of anemia and malnutrition from the crippling of the digestive apparatus as to lead to neurasthenia, hysteria, and various functional nervous diseases, or to pave the way for an easy and often fatal infection by the tubercle bacillus, pneumococcus, influenza bacillus, etc."

Mitchell places medical risk as higher than surgical, claiming that at least 5 per cent. perforate. Our own experience ever inclines us to view these cases more in the light which we see other surgical conditions, such as hernia, stones in the kidney and gall-bladder, and appendicitis, and to advocate their surgical correction before complications and sequelæ render operation difficult and hazardous, and the outcome doubtful and unsatisfactory. Ochsner³ advocates the establishment of operative indications by medical treatment early before complications have arisen. These he considers are perforation, hemorrhage, emaciation, adhesions, carcinoma. Mayo⁴ considers the indications:

Positive=obstruction, pain, hemorrhage, non-nutrition.

Relative=nutritional disorders and occupational disability.

The surgical treatment of acute perforation is dealt with in inclusive articles by Eliot⁵ and Petré⁶, who are practically in agreement with other writers on this subject. Their statistics

show most conclusively the wisdom of early operation and the rapidly increasing mortality with the lapse of each twelve hours—for the first twelve hours, a recovery of 56 per cent.; the second, 43 per cent.; beyond twenty-four hours, 16 per cent. Ochsner says 28 per cent. and three times as great after twelve hours. Mitchell furthermore calls attention to the more rapidly fatal cases where chronic obstructive symptoms exist, with more toxic gastric contents and lowered resistance from malnutrition of the patient.

It is important to emphasize the necessity for early recognition of these abdominal catastrophies, and to avoid spreading infection by cathartics and movements of the body, as is so commonly done in ruptured appendices, and to avoid the loss of irrecoverable time under the deluding influence of morphia before a surgical consultation is held.

In the face of some abdominal catastrophies, as fulminating pancreatitis, or ruptured ectopic pregnancies, the wisdom of primary or secondary operation is still debated; but no divergence of opinion obtains concerning perforating gastric and duodenal ulcers. They are universally considered subjects for operation, whose promptness is limited only by the time necessary to make suitable preparation, and this should be abridged as much as is consistent with reasonable safety.

The simple local preparation on the table, which so generally obtains, preceded by a hypodermic of 1-6 or 1-4 grain of morphia with 1-100 or 1-150 of atropia, is all that is needed.

In obvious perforation of the fundus or rigidity pointing especially to the left side, a central incision may be indicated, but, as a rule, a right rectus incision gives access best to antral and duodenal lesions. A free incision permits of rapid operation and speed spells success in such dangerous circumstance. The exudate of serum and stomach contents is rapidly removed by sponging, and the perforation, located by the heavy lymph flocculi, is found and sutured with purse string or Connell suture of chronic gut reinforced by one or two Lembert or Cushing sutures of silk or linen; our own preference is for the latter, as it cuts less. Where possible the calibre of the gut must be considered, and this is usually best conserved by having the line of suture at right angles to the long axis of the gut; that is, transverse rather than longitudinal. Should the rent prove so large or the induration

so great as to preclude closure by suture, the opening may be sealed by suturing omentum or mesentery over it.

The importance of closing the perforation in some way is conclusively shown by Petren's series, where the recoveries after suture fell from 54 per cent. to 9 per cent. in the unsutured cases.

A rapid review of the stomach and duodenum should be held to ascertain if other perforations exist, for multiple perforations have been definitely demonstrated in a certain percentage of cases.

The question of gastro-jejunostomy at the time of operation for perforation must be broadly considered as in any other detail of operative work. The immediate indication is to save the patient's life; the secondary consideration is to relieve the underlying condition. Given a patient profoundly shocked or in advanced peritonitis a gastro-jejunostomy would not be at all justified and should not be considered. Within the first twelve hours after perforation, and with the patient in a reasonably good condition, what factors should be considered in determining procedure? Primarily it would seem that in the absence of indurated ulcer or pyloric obstruction or other clear indications gastro-jejunostomy should be omitted, for statistically the permanent recoveries after suture of acute perforating ulcer are nearly if not quite as good as after the addition of gastro-jejunostomy; so that, in view of the added danger of gastro-jejunostomy at this time, suture alone should be accomplished. With clear-cut indications of obstruction at the pylorus or antral or duodenal indurated ulcer, where the procedure will not seriously jeopardize the patient, posterior gastro-jejunostomy should be done. In desperate cases with complete obstruction a rapid anterior gastro-enterostomy with Murphy button or a jejunostomy may tide over an otherwise hopeless condition.

Gastro-jejunostomy, then, in the presence of acute perforation, finds a place only where clearly indicated and with the patient in good condition; otherwise it is a dangerous and at times useless addition, and had best be omitted or left for a future time.

Drainage is nearly always indicated except in those rare instances which are seen and operated so early that but little soiling has taken place. Taken early, a gauze wick at the upper angle of

the wound or through a stab sutures. With much effusion, which descends to the lower abdomen and pelvis by way of the gutter of the ascending colon, a tube into the cul-de-sac through a stab wound above and to the right of the pubes with an auxiliary drain from wound to the right kidney pouch above will be sufficient. The after-care is the Fowler-Murphy peritonitis treatment. In lavage, care should be exercised to use only small amounts of water, avoiding strain on the sutured ulcer.

Chronic ulcers are treated by gastro-jejunostomy, excision, or by both.

In debilitated patients with stasis or dilated stomachs, a preliminary treatment by rest, lavage morning and evening, mild saline cathartics, abundant water with glucose by rectum, and the administration of olive oil, two ounces, through tube or by mouth at night will rapidly increase their operability. In more robust patients two ounces of castor oil twelve hours before operation with perhaps one or two stomach washings will suffice.

In antral, pyloric, or duodenal ulcer, gastro-jejunostomy yields 95 to 98 per cent. of permanent cures with a mortality in good hands of about 2 to 3 per cent. In ulcer of the fundus, excision is the operation of choice for the reason that gastro-jejunostomy does not relieve the situation so well.

The incidence of cancer on gastric ulcer is a most serious consideration, and has led men like Rodman to advocate excision of the ulcer area even with a much higher immediate mortality rate. It would seem to me that excision would be more clearly indicated in patients with indurated gastric ulcers who are near or in the cancer age period.

In pyloric obstruction, occasionally a pyloroplasty of the Heinecke-Mikulicz or Finney variety may be useful. We advocate the no loop gastro-jejunostomy of the Mayo-Moynihan type with large stoma in nearly all cases. If properly carried out, the results are all that could be desired; untoward happenings as pernicious vomiting, etc., are usually the results of poor technical execution, as pointed out by Robertson.⁷

Just how gastro-jejunostomy acts is the subject of much debate. That it is not a drainage operation in a strict mechanical sense seems true, but that it relieves the mucus, hyperacidity, resulting pylorospasm and subsequent dilatation,

seems equally true. Pain, the result of muscular tension, and not of acid contact on ulcer, as shown by Hertz,⁸ is thus promptly relieved, the stomach recovers its tone, and resumes a normal condition. How long the stoma remains must depend on the condition of the pylorus, as the law which gradually closes such artificial stomata, if the natural passage is open, is in operation here as elsewhere.

The ulcer should be infolded, excised directly or indirectly by suture, reinforced by omentum or mesentery if possible.

In ulcers of the posterior wall of the stomach, by opening the gastro-colic and gastro-hepatic mesenteries and revolving the stomach on its long axis, a suitable exposure for excision may be obtained. This failing, on account of adhesions, the ulcer may be attacked and extirpated by the transgastric route, which is quite satisfactory.

Hour-glass stomach, the result of ulcer, must be treated by excision of the ulcer and appropriate plastic operation with the added gastro-jejunosomy if obstruction exists.

A temporary jejunostomy with forced feeding may occasionally be indicated in those deplorably neglected and starved individuals with complicated sub-acute perforation not permitting of immediate solution. The operation can be quickly done by the Witzel method, and rapid restoration of weight and resistance obtained.

The association of chronic gall-bladder inflammation should not be overlooked, and when present, drainage of the gall-bladder instituted.

The appendix should be removed if possible, as it is frequently diseased, Paterson characterizing its frequency as "astonishing."

The post-operative treatment consists in lavage for nausea and vomiting, saline by rectum or under the skin slowly, water by mouth as soon as nausea ceases, followed by broths on the second day. The patients are allowed to sit up at once if they desire. They are out of bed in a few days, and leave the hospital in ten days or two weeks. Careful feeding with avoidance of unduly coarse food for several months should be adhered to. Any immediately bad symptoms, which occur occasionally after a few days or weeks, are quickly controlled by return to fluid diet, or rest in bed for a few days.

REFERENCES.

1. Mitchell, B. A., *Annals of Surgery*, 1911, LIV., p. 806.
 2. Hall, *Jour. A. M. A.* 1911, LVI., p. 85.
 3. *Operative Surgery*, Ochsner and Percy.
 4. Mayo, W. J., *Annals of Surgery*, 1911, LIV., p. 313.
 5. Eliot, E. J., Jr., *Annals of Surgery*, 1912, LV., p. 546.
 6. Petré, *Surg., Gyn., and Obstet.*, 1912 XIV., p. 544.
 7. Robertson, George, *Edinburgh Med. Jour.*, 1911, VII., p. 329.
 8. Hertz, *Lancet*, Lond., 1911, p. 4575.
- 90 Bute Street.

PELLAGRA IN THE DISTRICT OF COLUMBIA.*

By H. H. HAZEN, M. D., Washington, D. C.
Clinical Professor of Dermatology, Howard University;
Assistant in Dermatology, Johns Hopkins Medical School.

In October, 1911, Dr. S. R. Karpeles collected five cases of pellagra that had been treated in the District of Columbia in addition to reporting one of his own. Since that time five more cases have been under observation, only one of which, however, originated in the District. No fewer than six of these patients came from the neighboring counties of Virginia. So far three of these eleven patients have died, although I understand that the decease of another may be expected to occur at almost any time.

The case that did originate in the District deserves study for several reasons, firstly, because no other case has originated here, and secondly, because of certain features associated with its origin.

On April 19, 1912, during my absence in Europe, a negro girl of seventeen was admitted to the service of Dr. E. H. Reede, at the Freedmen's Hospital, for supposed syphilis. Her history showed that since she was ten years of age she had not been out of the city for a single day until she was committed to the Girls' Reform School in October, 1911. She had lived between First and Second and E and F streets, N. W., in a squalid home, before admission. There was no history of any previous eruption, nor did the family, visitors, or neighbors appear to have thus suffered. She complained that at the school she was given no fresh meat, fowl, eggs, or fish; that in February, 1912, she had suffered from "rheumatism of the knees and bleeding of the gums," and that she had been hungry all of the time. About two weeks before admission,

*Read before the National Association for the Study of Pellagra, Columbia, S. C., October 3, 1912.

she began to feel badly, and had superficial inflammation around the vagina, as a result of which the school physician naturally diagnosed syphilis, a far from uncommon disease at the school.

A few days after her admission to the hospital, she showed a symmetrical erythematous eruption upon the hands, face, elbows, knees, and neck, and pellagra was at once suspected. When I returned home, May 5th, I confirmed this diagnosis. Because of her history of dietary insufficiencies, she was fed largely upon a fresh protein diet, with, of course, the exclusion of corn. However, she grew progressively worse, and died May 19th.

None of our laboratory or clinical investigations, which we endeavored to make as thorough as possible, yielded any new information. Autopsy showed an active congestion of all organs, with a slight enlargement of the suprarenals, which, however, showed no microscopic change other than the congestion. We were unable to find the cell inclusions of Chalmers and Sambon in the brain tissue, although they were carefully searched for. It may be remarked that I was familiar with these inclusions, Dr. Sambon having kindly shown them to me at Rome, and that they certainly looked very like parasites.

The Girls' Reform School is situated in the extreme northwest corner of the District of Columbia, near the Potomac River and about three miles from Georgetown. It is well conducted and clean, uses city water, and is screened. Connected with it is a farm upon which fresh vegetables in abundance are raised. Inasmuch as most of the girls are committed for "crimes of passion," the board of trustees felt it wiser to give fresh meat but once a week, and then in the form of stews; meat gravy was frequently served upon the vegetables, however. Strange to say, no provision was made to serve fresh poultry, fish or eggs, some eggs of course, being used in the cooking. While it is true that the inmates gained weight while at the institution, it is not surprising in view of the carbohydrate rich diet upon which they were fed. The vegetables were excellent, and the institution raised its own corn. It is gratifying that the president of the board had announced that the Marine Hospital Service would investigate conditions at the school.

This one case has brought up a number of

very interesting questions. Firstly, did the disease originate at the school or at the home of the patient? In this section of the country pellagra is much more common in the rural districts, and so far as I can learn practically never occurs in those who have not been out of the city. More observations upon this point are desirable, for the question has never been seriously studied. Taken all in all the chances seem to me that the case originated in the school. Personally, it seems to me that the incubation period of pellagra is shorter than is usually believed, for I have seen children of two or three months with attacks in full bloom.

Secondly, when a disease occurs in an institution, what are the chances of more cases developing? Judging from the records of our insane asylums, alms houses and certain of the orphanages, as quoted by Dr. Rice, there is certainly far more than a mere chance of one case being the first and last.

Thirdly, was this the only case at the school? Two cases of skin lesions occurring at the same time were sent to another hospital where they were diagnosed syphilis, just as our case had been, and where they improved on anti-syphilitic treatment. In view of the general tendency to label all skin eruptions in the negro as syphilis, there remains the possibility that one at least of these two cases might have been pellagra. On the other hand, no new case of pellagra has originated in the institution.

Fourthly, what are the duties of the authorities in charge when pellagra is found to exist in an institution? It would seem to me that the food supply should be thoroughly overhauled in all respects; that the inmates should be inspected and watched, and that a careful search should be made for vermin. In the past we have found that our institutional diseases are usually spread by bad food or water, are due to animal parasites, or are transmitted by animal or insect carriers. In view of the fact that there is certain evidence to show that disease may be transmitted by one of the following parasites, the mosquito, the house fly, the stable fly—*stomoxys calcitrans*—the sand fly—*simulium*—or a tick of some kind, patients should certainly be isolated against insects of all kinds.

Fifthly, did a protein-poor diet in any way act as a predisposing influence favoring pellagra? It would seem that a diet insufficient in

any substance might lower the resistance and make a more easy victim. In this regard, it is interesting to note that the Illinois Pellagra Commission states "Deficient animal proteid in the diet may constitute a predisposing factor in the contraction of the disease."

Sixthly, is it wise to give growing young people a protein-poor diet on the supposition that it may increase the sexual appetite? There can be but one answer to this question, and that an emphatic No!

Seventhly, is pellagra on the increase around Washington? In view of the fact that all cases have been seen during the last two years, although many well-trained men have been searching for several years longer, makes one feel that it is on the increase.

BIBLIOGRAPHY.

1. Report of Illinois Pellagra Commission, *Archiv. of Int. Med.*, 1912, X, 123, 219.
2. Karpeles, *Washington Med. Annals*, 1911, X, 252.
3. Rice, Pellagra among Children in Orphanages," read before Association for Study of Pellagra, October 4, 1912.

1204 Eighteenth Street.

WHAT IS THE DOCTOR WORTH?*

By W. W. CHAFFIN, M. D., Pulaski, Va.

Fellows of the Southwest Virginia Medical Society, Ladies and Gentlemen:

It is the custom of all medical societies that once a year the members are called upon to sit through, if not listen to, the President's Address. Some of these addresses are very long and tedious, others are more or less instructive and entertaining, but all have the one thing in common—everybody is glad when it is over. So without further ado, I will proceed to administer the annual dose, and I do promise you that even if the punishment is severe, it shall be short.

I have chosen for my subject, one which I think will at least interest the doctor and laymen alike: "What is the Doctor Worth?"

In the olden days when the doctor was the center around which wheels of neighborhoods revolved, this question would never have suggested itself; whoever he was, and whatever he was, he was a jewel beyond price. He was the trusted friend, guide and defender of his neighborhood, a representative of so high a standard

that any criticism of either his actions or sayings met with ready and vigorous defense at the hands of his friends. Quiet he was, but alert, ever watchful of his clientele, observant, and noting philosophically those traits and tendencies of individuals and families without a consideration of which no diagnosis can be complete. Self-sacrificing to the extent of personal hazard, he calmly, fearlessly and honorably carved for himself an epitaph, not upon marble slab or pondrous tomb but that deeper, nobler, deathless epitaph in the hearts of those he left behind. Like the fabled myths of old he has departed and we can only look backward and sigh for the era he adorned and honored, bowing before his record as a sacred memory. Today, keeping pace with the trend of rapid progress, the doctor is another man. There are no longer units of settlement, population is no longer scattered and inaccessible. Where one family was, hundreds now are; where one doctor was, dozens are now gathered. The natural, the inevitable, has happened; what was a battle for his people's good is now too often a struggle for self-existence, and this struggle presents problems which by no means insure a survival of the fittest. The fittest for the present fight are often, unfortunately, by no means the most deserving of survival.

The public is becoming both critical and restless. No longer is there the faith of old, but Dr. A's friends are on the *qui vive* to inform all that Dr. B's methods are not such as Dr. A's, and Dr. C. and Dr. D. have advocates just as strenuous. So no doctor has long an opportunity to learn those physiological, pathological and psychological blendings of characteristics which go to make up the individual. Instead, the patient is banded about like a shuttle cock from A. to B. to C. and D. with an occasional shift to the great Dr. E. or F. of Kalamazoo or Halifax. Result, the helpless victim becomes hopeless and like the drowning man grasping at straws, resorts to every empiric quack and ism. Lack of faith in the patient begets lack of interest in the physician; each distrusts the other, and the capacity of neither can be estimated.

What is a physician worth? He is worth exactly what his community makes him. If they desire it, the community can make of a man a capable and trustworthy doctor. Equally, if they desire it, they can ruin the brainiest and

*Presidential Address delivered at a meeting of the Southwest Virginia Medical Society, June 21-22, 1912.

most well-meaning man on earth. Hence, while we are together tonight as public and profession, let us consider this matter of a doctor and his worth.

Whom should you choose for your doctor? He should be, first, a *man*, one not to be influenced by the winds of circumstances, one whose opinions will not be swayed by questions of expediency, neither cajoled by flattery nor bullied by criticism, and one who can keep a confidence in the face of all the artillery of gossip, and holds his relation to his patients and his clientele as a sacred obligation.

Second, he should be intelligent, not an educated fool who strives to impress the uninitiated with polysyllabic utterances, having no real significance, but one whose intelligence has borne the test of reasonable preparation for study, has completed a regular course at a reputable medical school, and bears the stamp of approval of his State Examining Board. To all this should be coupled the saving grace of common sense.

Third, he should be interested in his professional work. This can be estimated by his providing himself with suitable appliances and fixtures and with recent books and medical journals, by his being conversant with all medical topics, especially recent advances, by his attendance on medical gatherings and societies, his interest in local sanitation and the progress in improved methods of caring for the sick, and frequently questioning him on professional subjects.

Fourth, he should be careful in his investigations, no haphazard, snap-judgment diagnosis, but pains-taking, and going into what may seem to you as needless and tedious details before forming positive conclusions.

Now having selected your physician with these qualifications as a basis, what are your duties toward him? You should have the same qualities as he, and more. First, you must trust him, withhold nothing of your condition from him or your anxieties which may have a relation to the case in hand; even express to him any doubts which your dear friends may have planted in your mind against his conduct of your case. He can and will give you his reasons.

You must show your faith further by implicit obedience to his instructions and as well by showing your trust to others. Second, you must inspire him with the zeal to put forth every ef-

fort to improve himself, take note of his new books, talk to him of his medical meetings and his equipment. Show *your interest*; you want him to be ready when emergencies arrive, help him to get ready, by mental stimulation. Nothing is so dear to him, nor will help him so much in his hardest trials, as the memory of some kindly words or confidence you have reposed in him. So do not be stingy about these matters. Third, respect his confidence; he has a time-honored and faithful record for respecting yours. Isn't it fair, then, that you should respect his? It is just as much your duty to keep his instructions and comments to yourself, or else report them *accurately* as it is his duty to keep yours. You, as the public, frequently, I may say usually, do the profession great injustice by intentional as well as unintentional misquotation; to hide some personal delinquency you say the doctor says thus and so, when you know perfectly well that he said nothing of the kind. If later the truth comes out, as it usually does, the doctor, not you, is criticised. Fourth, pay him; pay him promptly and in money if possible. Money can't repay much that he does, but it makes it easier for him to do. It enables him to provide himself proper means to study, to arm himself with appropriate equipment; and remember that every financial worry removed from his mind gives him that much more time for the consideration of your worries. Pay him, too, with gratitude, the sweetest and most valued remuneration a doctor ever receives. A kindly word of appreciation goes far as a spur to effort, and cements the ties which bind him to your interests.

Finally, remember that he is partly human: don't deny him his little hobbies or interests; let him enjoy his fishing, hunting, horse racing, baseball, golf or whatever he prefers as recreation. So long as it does not interfere with his duties, it is really not your business. Don't forget this. You should rejoice that he can get some relaxation from the incessant repetition of your own and other's worries, which are his daily lot.

Now just one more word; don't make comparisons. The public is too wont to worship the unseen. There are strange heroes, talented specialists within easy reach of any locality these days, but that doesn't mean that your particular case is one for the specialist. You

are not a competent judge of professional specialism. The great Doctor X. is indeed skilled in his line, but is as helpless as an infant outside of that particular line. The great diagnostician of — city was far more trustworthy while earning his great reputation than after achieving it, and when you are cajoled into going to the celebrated Dr. Y., remember that your home doctor who ushered you into life, attended your varied childhood ailments and has watched your development, is familiar with your surroundings, habits, ancestry and has studied your present symptoms, is in a far better situation to decide as to your condition and its management than is the stranger, however eminent, who, with his office crowded with waiting patients, gives you a cursory examination, collects a generous fee, makes a shrewd guess and dismisses you with a pat on the back. Don't expect too much from his examination—he don't.

An old father once said to his son who was leaving home to take a position in the city, "Be good my son, be good, and if you can't be real good, be very keerful." And now I say to you, if you do go off "strange doctors for to see," be careful and take a full detailed report of your case from your family physician. On this statement the stranger will be much more likely to get an accurate idea of your condition, and it will be just to him, to yourself and to your home doctor.

If in this plain talk I shall have aroused in any hearer a desire to think over and realize the fundamental principles which should form the basis of our mutual relations, I shall feel more than repaid for not yielding to the temptation to present to you some of the very striking advances of latter day medicine—a theme upon which we all are proud to dwell.

But I do want you all to realize that the answer to the question, "What is the doctor worth?" is in your hands, and I pray you to put aside those bickerings, envies, jealousies and gossip so common at this day, and if you and your doctors do dwell together in that harmony and spirit of mutual helpfulness which I have outlined, the time will come, as of yore, when we can truly say, he is above rubies and beyond price.

The Lane Medical Library,

Of the Leland Stanford Junior University, San Francisco, was dedicated Sunday, November 3rd, with appropriate opening exercises.

THE SOCIOLOGICAL ASPECT OF PELLAGRA.*

By L. B. MYERS, Charlotte, N. C.

General Secretary, The Associated Charities.

The preacher, the teacher, the doctor and the social worker have been drawn close together in recent years in the great work of saving humanity from the overwhelming load of miseries that for centuries have borne it down. They are beginning to recognize each other not as of separate and distinct professions, but as of different branches of one great profession—that of saving men and women to become happy and efficient units of society. There is a call of humanity for better team work among these four branches of the great profession that Jesus of Nazareth followed—that of saving men. This co-operation or team work has been much in evidence in the cure of tuberculosis. A beginning has been made in the treatment of some other diseases. Certainly such co-operation is necessary in all diseases that are apt to run a long term, and pellagra belongs to this class.

A case of pellagra frequently constitutes a social problem fully as serious as the medical problem is grave. This is the more especially so if it is the bread winner, the father of the family, or the mother who is stricken. The often long-continued term of the disease, the fluctuating severity, the uncertainty of the outcome, the, perhaps, ill-founded fear of contagion, the inadvisability of the patient returning to work until completely recovered, all add to the difficulties of the social problem. All the social problems are more acute among the poor, and pellagra is most often found in this class. The loss to society in wages unearned, in families poorly fed, in children kept from school and in the care of widows and orphans can only be conjectured, but is very large. Any propaganda, no matter how costly, for education or research that lessens the grip of this disease will save for the people many times its cost each year.

The problem of charity or relief of the poor is strictly a social problem, and as such comes into direct contact with pellagra. Next to tuberculosis, pellagra is the most difficult disease the organized charity worker has to deal with. Often for months, and sometimes for years, the entire income of the family is cut off while the presence of the sick man makes impossible that readjustment of the family which might be easily

*Read before the National Association for the Study of Pellagra, at its second triennial meeting, held at Columbia, S. C., October 3-4, 1912.

accomplished in the event of his death. Long continued illness is a much more difficult social problem than death.

The study of the family resources, the adjustment of the family to its reduced income, and the development of an earning capacity in the members of the family who never before were wage-earners, all these, and a score more things that result therefrom, are beyond the doctor's power. Unless the family has character enough to accomplish this unaided, it must be done by the social worker in co-operation with the medical adviser. All the social resources of the community may need to be called into co-operation.

After a patient's partial or complete recovery, we have confronting us the problem of getting him reinstated into industrial life. Where a man of the unambitious class has been idle for a year or more, it is often difficult to get him back to work. It is notorious that in saving the lives of men and women, or children, we often ruin them, as far as world usefulness is concerned. It is this that makes it so important to find employment for the partially disabled and the convalescents from diseases that run a long term. For what does it profit a man to save his body if in doing this we ruin his soul? Instances are numerous where the life of a husband has been saved by great sacrifice on the part of the wife and children, only to have that husband and father spend the rest of his days in idleness, living off of the earnings of the same long-suffering wife and children. It is not the habit, in this day, for the doctor to say that he has no interest in the patient's family—or no interest in what becomes of the man after his discharge—or to say that his duty has been performed if he saves the life of the man. The great doctors of the day are co-operating with social workers not only to save the man's life, but to save the man. It is this that is glorifying the work of the doctor and making him an accepted disciple of the Great Physician of David's line.

The cause of pellagra is not at this time determined, and we cannot speak positively as to means of prevention. But I am sure that whatever may finally be determined as the cause, whether spoiled grain, or the bite of an insect, or something else, its prevention will be to a large degree a social problem. The cause of tuberculosis is known and its cure is known, yet we are failing both to prevent and to cure it. Its cure and prevention is largely a sociological

problem and will require a social revolution. There must be a fundamental reformation of housing conditions among the poor and of living habits among one-half our population before we can hope to conquer the great white plague. As pellagra is most prevalent in the poorer social class, we have reason to believe that bad housing and drainage, unfavorable diet, poor cooking, filth, the presence of flies and mosquitoes, a polluted water supply, and other social ills are favorable to the disease, though not proved responsible for it. Improvement in these lines will in all probability reduce the number of cases in any locality, and a social revolution may be required for its final eradication.

If in the treatment of the disease a special diet is prescribed, the social problem again comes to the front. Is the family income sufficient to provide the diet? Is the housekeeper competent to prepare it properly, and are ordinary sanitary precautions observed, etc.?

It seems to me that the medical and social problems are so interwoven that wherever possible the doctor should call on the district nurse, settlement worker, organized charity worker, or other social agency to co-operate with him in the task of saving the patient and his family.

Clinical Reports

DIABETES MELLITUS COMPLICATED WITH GLYCURONIC ACID.*

By MARK W. PEYSER, M. D., Richmond, Va.

Secretary Richmond Academy of Medicine and Surgery;
Treasurer Medical Society of Virginia.

Miss P. B., aged nineteen years, stenographer, was first seen on April 21, 1912, when she had been complaining for a week with constipation, nausea, vomiting, headache, pain in the back, and disturbed slumber. Her period had not appeared; she was easily fatigued and had become very irritable. There was no fever or increased blood pressure. A history of similar attacks during the spring months for the past three or four years was elicited.

Autotoxemia was diagnosed and suitable remedies and diet prescribed. On April 24th she was very much improved, but yet complained of pain under the lower ribs posteriorly.

On April 26th, examination of a specimen

*Read before the forty-third annual session of the Medical Society of Virginia, at Norfolk, Va., October 22-25, 1912.

of the urine passed upon arising in the morning, showed the presence of a large amount of a copper-reducing substance, other factors being in accordance—namely, increased acidity and specific gravity. Fowler's solution was prescribed and a strict anti-diabetic diet enjoined.

On May 3rd, examination of the 24-hour quantity showed 26 2-3 ounces of urine; specific gravity 1030; acid reaction; sugar per ounce, 8 grains; percentage per ounce, .017. The bromide of arsenic instead of Fowler's solution; sodium bicarbonate, and a proprietary anti-diabetic agent were prescribed. For seven days there were continual reduction in quantity of sugar and specific gravity, increase in quantity of urine, and change of reaction varying from neutral to alkaline. After this period, examinations were made every two days and showed progress as before, until May 28th, when there was no precipitation of copper. On June 2nd, a trace of sugar appeared; on the 6th there was 1.3 grain per ounce, and on the 8th, .85 grain per ounce.

The history of the case was then detailed to Dr. E. G. Hopkins, who stated as an off-hand opinion that it was not one of diabetes mellitus. A 24-hour quantity was submitted to him for examination and in it he found glycuronic acid but no glucose. Two days later, in another specimen, he also found glucose.

In order to ascertain the patient's tolerance for carbohydrates, three-fourths of a slice of baker's bread was allowed daily, and gluten flour, which had been previously permitted, and all medicines withheld. Thereafter, weekly examinations of the 24-hour quantity showed glucose but once and glycuronic acid several times. On September 23rd, three gluten-flour batter cakes, and a peach or half of a pear, were permitted daily. There was no sugar as a consequence, nor was there any after September 30th, when the amount of wheat bread was increased to one slice. On October 15th, the urine was normal except that the quantity was too great (three pints), and the ration of bread was increased to one slice and a quarter.

There had been loss of weight which, however, could easily be attributed to the intense heat, but no polydipsia, bulimia, skin dryness, or eruption. There has been no acetonuria. The patient has always had a good appetite, and during her two weeks' vacation she regained her weight which, since her return to the city, has

been greater than ever before. The largest quantity of urine passed in any 24-hour period was one-half gallon, but no sugar was detected in it. The rapid improvement could as easily have been credited to the medicines as to the diet were it not for the fact that it continued as well after their withdrawal as before. To date, the menses have not reappeared.

Sahli says that glycuronic acid is formed in the body, probably even under physiologic conditions, by the oxidation of dextrose, from which it differs but little in its elementary composition. It appears in the urine when an opportunity is furnished for it to become combined in the organism with other bodies, and so to escape complete oxidation. There are a great many substances which may combine with glycuronic acid. Flückiger has proved that, aside from the uric acid and kreatinin contained, the reducing power of normal urine depends upon the presence of the paired combinations of glycuronic acid, especially the phenol, parakresol, indol, and skatol glycuronates. P. Mayer has recently confirmed these observations, and in addition has shown that the excretion of the combined glycuronates has a bearing upon diabetes mellitus and upon alimentary glycosuria. He claims that after excessive ingestion of carbohydrates, and especially of dextrose, large quantities of the glycuronic acid salts are sometimes excreted in the human urine before sugar appears. In these cases, it seems as though the organism were able to oxidize the sugar up to the stage of glycuronic acid, but no further.

This hypothesis of the origin of glycuronic acid will explain the frequently coincident occurrence of combined glycuronates and dextrose in the urine which has been observed both in alimentary glycosuria and diabetes mellitus. Here, a part of the dextrose which is not utilized has been oxidized only to glycuronic acid. The acid is capable of reducing but not of fermenting. This explains the peculiarity which has been observed in the urine of a diabetic patient upon a successful diet—*i. e.*, it still reduces but does not ferment. Even the reduction is peculiar in that, unlike the dextrose reduction, it occurs very slowly. Many discrepancies between the quantitative estimations of the amount of sugar by the polarization, by the fermentation and by the copper tests can thus be explained by the simultaneous presence of dextrose and some combined

glycuronates. The latter, unlike the sugar, rotate to the left, but like it, reduce. Glycuronic acid has never been found in the urine except in combination. P. Mayer claims that these combinations can be split up by boiling for one to five minutes with 1 per cent. sulphuric acid, and that the peculiarities of the combined and of the artificially separated glycuronic acid can be examined in the urine. The duration of the boiling must be determined in the case of each combined glycuronate by demonstrating that the urine has changed its character in the maximum manner expected. No definite time can be given for all cases.

303 North Twelfth Street.

Proceedings of Societies, Etc.

NORFOLK COUNTY MEDICAL SOCIETY— SURGICAL SECTION.

Reported* by FRANK H. HANCOCK, M. D.

At the October, 1912, meeting of the surgical section of this society, Dr. R. L. Payne, Jr., chairman, the following case reports were presented by *Dr. Charles W. Doughtie*:

Interesting Case of Inguinal Hernia.

Case 1.—James Moore, colored, 18, bellboy. Father dead; cause unknown. Mother living, good health. Had the usual diseases of childhood. Other history negative.

Was sent to the hospital on the evening of September 26, 1912, about 6 o'clock. Had been attacked with pain in abdomen three days previously, which was attributed to "error in diet." Vomiting ensued, which later became stercoraceous (diagnosed as intussusception by his attending physician). There was obstipation after the lower bowel had been relieved.

Examination—Temperature, something over 100 F.; pulse, 120 and plus, intermittent. Respiration 36, labored and painful. Expression, that of illness. Countenance anxious; features pinched. Chest negative. Abdominal muscles were rigid over the entire area; tympany general; pain increased by pressure, more intense in right iliac fossa, the rigidity being greatest at that point.

Inspection revealed nothing that has not been detailed.

Upon examination of the hernial rings, well up in the right inguinal canal a mass was dis-

covered which was about the size and feel of an enlarged gland. Palpation of the mass in question increased the suffering of the patient.

Resume—Sudden pain (which, by the way, was never referred to the hernial region, nor was there any history of hernia), vomiting becoming stercoraceous; constipation; abdominal distention; tenderness and rigidity, intense pain. Examination of hernial canal with the findings incident thereto, together with the violent general symptoms, made a diagnosis of strangulated inguinal hernia very probable, this opinion being corroborated by Dr. S. W. Budd, who happened to be present when the case was first seen by me.

Operation—Ether was administered. Patient was prepared by the benzine-iodine method. Incision was made over the right inguinal canal, longitudinally as for a Bassini. The fascia fibres were separated. Upon reaching the canal, there was no longer a possibility of error; a dark hernial sack was rapidly exposed, the fibres at the internal ring were exposed and what was supposed to be the constricting band was cut. It subsequently developed, however, that the real constriction was in the neck of the funnel-shaped sack. Being opened, the sack was then slit through the constriction. When the sack was opened and the gut released there was a large quantity of dirty, bloody fluid evacuated from peritoneal cavity. The gut was absolutely black. The incarcerated gut was pulled out of the cavity and very hot towels were constantly applied, while the patient drifted along under the anæsthetic for something like forty minutes.

I felt somewhat encouraged and took comfort in what seemed to be a partial restoration of vitality, since my patient was running an intermittent pulse which could then scarcely be counted, and was in no condition for a resection. I then replaced the gut temporarily, having cleared the peritoneal cavity of fluid as well as was possible. Inspection after a few minutes showed a gut with only one doubtful spot. I determined to replace same and take a chance. I closed my wound after the ordinary Bassini method, having stabbed a hole in the median line above the pubis and introduced drainage, some of which was removed after forty-eight hours, the remainder on the third day, at which time there was a discharge of a markedly fecal

odor. A drain was replaced each day, each time there being some fæces. This condition persisted for about two weeks, but the patient rapidly improved till on the seventeenth day the patient was permitted to get out of bed, and on the eighteenth day I am glad to show him to you gentlemen here this evening. At this time you will observe he is practically well, only having a very slight skin abrasion in the stab-wound region. The hernial wound was slightly infected at the lower angle (a stitch-hole abscess) which promptly healed.

I report this case in order to impress the importance of a careful search of all hernial rings, when the patient complains of acute abdominal pain, and particularly when the diagnosis is not perfectly clear; also to show how easy it is to miss a hernia of this size, since we have been brought up to look upon a hernia as a thing fully as large as a five-pound bag of salt, and never so small as to necessitate careful search, the only thing from which to differentiate it being a large hydrocele. The knuckle of gut involved in this case was no larger than the knuckle of my flexed forefinger, the symptoms being totally disproportionate.

Repair of a Mangled Hand.

Case 2—J. A. G.; white, male, 24; worker in a planing mill. Had his right hand caught in a piece of machinery. The distal phalanx of the thumb, the index and middle fingers, and that portion of the hand between the thumb and ring finger with the exception of the palmar skin, were completely torn away.

The terminal phalanx and first joint of thumb amputation was completed; the second and third metacarpal bones were resected, the ragged tissues trimmed off smoothly, the palmar skin was brought back over the stump and sutured to the shortened skin on the dorsum, thereby giving a tough skin on the working surface and producing a remarkably strong and functionally useful hand composed of half a thumb, ring and little fingers. The patient can do with this hand nearly everything which he formerly could, and now holds his same position.

I desire to call your attention to this hand, and will now exhibit the patient.

DISCUSSION.

Dr. Lomax Gwathmey said that the question of hernia and its attendant phenomena would

always interest surgeons—that is, as long as the congenital deficiencies of the anterior abdominal wall permitted the frequent egress of abdominal contents through the abnormal size of *normal* openings, as at present. It is one of the prices man must pay for the erect position he has assumed.

Most of the errors of diagnosis come from a hasty examination, though there is no doubt that some of the rarer forms of hernia may be exceedingly difficult to diagnose on account of their situations, the obturator hernia, for instance, first described by Arnand de Ronsel in 1720.

Not many of them have been reported—about 200, I believe—the diagnosis having usually been made only after strangulation had occurred. Berger found one case in 10,000 hernias observed at the Société des Bandages and at the Hospital for the Ruptured and Crippled not a case had been noted in 75,000 occurrences.

Some time ago a woman was sent into my hospital with a suddenly developed, and very acute, pain in the pubic region. She was in the ninth day of her puerperium, and while the gut had not pushed aside the obturator and pectineus muscles sufficiently to make out a tumor, the pain and sensory disturbances were marked in the neighborhood of the obturator foramen, and we made a provisional diagnosis of obturator hernia.

A median abdominal incision was made and a piece of gut was seen shoving its way through the obturator canal. That is the only one I ever saw, or probably will see.

Dr. Gwathmey discussed the various forms of internal hernias; hernias into the peritoneal fossae, and hernias through bands of old adhesions, where the meshwork of the new adhesions had been absorbed, leaving those tough bands that occasionally catch and hold a loop of gut, with resulting symptoms.

Dr. J. J. Miller reported a case in his practice of strangulated hernia—left inguinal—operated upon by Dr. Ruffin in 1908. The patient was in extremis when he saw him, and he recalled that Dr. Ruffin left the involved gut immediately under the incision which was left open for forty-eight hours. The patient doing well at the end of that time, the wound was closed.

In 1911, this patient again developed symptoms of obstruction, and some pain in the region of the previous strangulation. Dr. Ruffin was asked to see the case. The patient was taken to the hospital and again opened up; when to their surprise there was no sign of strangulation, no adhesive bands, nor anything to indicate that there had been trouble in that region except the scar on the outside.

Casting around in the abdomen to see what there might be elsewhere, some gall-stones were found and removed.

Now, following this operation, the obstructive symptoms subsided, but the *pain continued* in the left side near the site of the old operation. What to do about this, Dr. Miller did not know, especially since the pain was incessant, and at times terrific, the patient said. This continued for several weeks when the patient passed a kidney stone with entire relief from pain.

Dr. Kirkland Ruffin said that it was not often that surgeons had the happy experience of seeing intestinal obstruction in the first phase; and thus they had to devise schemes to cope with the serious situations that develop in acute obstruction of several days' standing.

Leave the injured bowel under an open wound for sometime, as in the case above, so that it may be reached if the general condition is such that a resection has to be done on account of continuous intestinal stasis; hence, the fearful, disheartening mortality that follows surgery of acute obstructions, "mortality of delay" Moynihan calls it.

Seeing that we get in there so late, it is necessary of course that we operate rapidly and dexterously. In all cases the stomach must be washed out and the bowel cleared of its putrid contents. The stomach is so frequently distended with a yellowish highly offensive fluid, that it is very important to get out, not only on account of its quantity and offensiveness, but in order that nature may again utilize the stomach for the escape of more intestinal putrescence.

The case Dr. Miller refers to I recall, but somewhat dimly. I am sorry not to have had an opportunity to examine my records before discussing it here. The case, as I remember it, was far advanced, just as Dr. Miller saw it, and of course great absorption of toxic bowel contents had occurred, and the bowel itself was in a

wretched condition. The profound shock of the continued strangulation had so overwhelmed the patient that a few more moments of added operative shock would have resulted in immediate dissolution. So we kept the injured bowel where we could easily reach it for a day or two.

In my opinion, the obstruction which developed in 1911 in this patient followed the acute manifestations of the advancing kidney stone, and was directly induced by it.

Naturally, colonic and abdominal wall pressure upon fecal contents would affect the underlying ureter, and so consciously or unconsciously that pressure was not made at the time that this pain was so severe in the ureter, and the bowels did not move.

Case of Hodgkin's Disease.

Dr. W. E. Driver reported a case, and showed pictures of Hodgkin's disease, occurring in a man sixty-one years old, in which the primary attack had been made in the superficial lymphatic glands of the face, and especially of the eyelids.



FIGURE 1.

The first enlargement was over the right zygoma, which was removed. Shortly after, the

patient noticed some heaviness of eyelids, with difficulty of approximation, especially of the right eye, and successive enlargements of the glands of the neck and upper pectoral region.

One of the glands was removed and examined. It showed the changes characteristic of Hodgkin's disease; proliferation of connective tissue stroma, leading to fibrosis, and an infiltration of lymphoid cells.

The first picture shows the eyelids closed tightly, the patient being led around as any other blind man might be; the considerable anæmia from which the patient was then suffering is in evidence here.

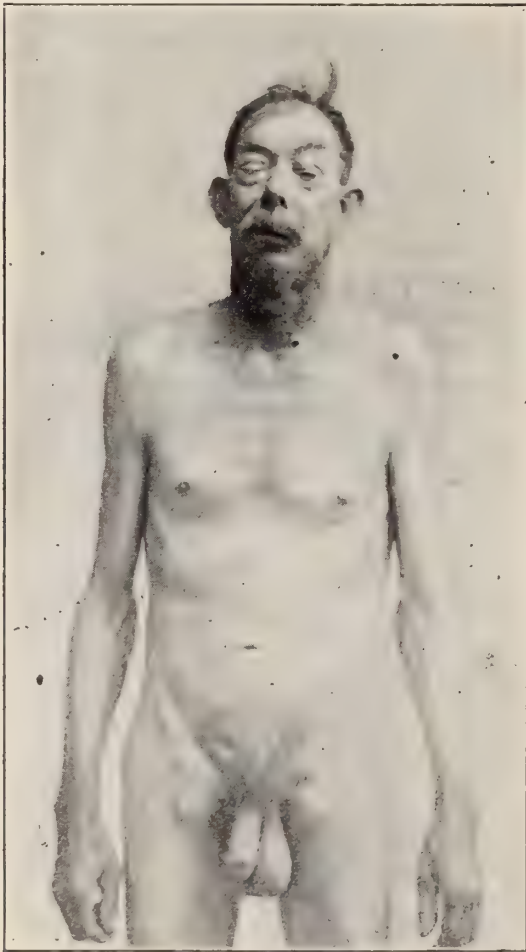


FIGURE 2.

The second picture shows the progressive enlargement of the lymph glands throughout the body, especially in the inguinal regions. Incidentally, there was a hyperplastic fibrosis of the spleen which was quite noticeable.

The third picture shows the patient after about twenty exposures to the X-Ray, the exposed surfaces being the neck and upper chest.



FIGURE 3.

Following the exposures, there was a remarkable shrinking of the glands all over the body, but especially in the neck, thorax and eyelids.

As you see, the eyes are now open and the patient walks without a guide, being quite able to see, with a fair field of vision. Simultaneously, his general health improved, and he became less asthenic and emaciated. Certainly there was a temporary arrest of this progressive malady.

Indirectly I have heard that four or five months later he died of pneumonia, at his home in the country.

All of this occurred in the year 1911.

DISCUSSION.

Dr. S. W. Budd said there is a considerable difference of opinion as to the etiology and pathology of Hodgkin's disease. The numerous synonyms appearing in literature (lymphadenoma, lymphosarcoma, lymphoma malignum, lymphatic anemia, pseudoleukemia) bespeak this fact. Some observers maintain it is a true infection—most likely tuberculosis; others state that it is a malignant condition resembling sarcoma rather than carcinoma.

Hodgkin's disease is characterized by a lymphatic hyperplasia associated with enlargement of the spleen and anæmia. The histologic picture varies with acuteness of the condition. Generally speaking, the demarcation between

the medulla and cortex is practically obliterated, there is an increase in the reticulum and a relative decrease in lymphoid cells. Eosinophiles are present in the gland structure, sometimes in large numbers. The endothelial cells are also increased in number, and some of them are very large and contain many nuclei. These cells are known as Hodgkin's disease cells and they resemble the cells found in some of the giant cell sarcomas, but they cannot be called true sarcoma cells inasmuch as they are derived from endothelium. The blood shows an anemia of the secondary type and sometimes a moderate leucocytosis. The lymphocytes are not increased, and myelocytes are rarely found. The splenic enlargement may be a simple hypertrophy or it may be due to a lymphoid hyperplasia.

The malady has to be differentiated from acute adenitis, tuberculosis, leukæmia, lymphosarcoma and carcinoma. In acute adenitis the enlargement is more rapid and the number of glands involved fewer. In tuberculosis there is a tendency for the glands to break down to form fistulae and to mat themselves together. A blood examination will clear up the question of leukemia and a microscopic examination of a gland will differentiate it from lymphosarcoma and from carcinoma.

The condition is medical rather than surgical, although there are times when surgery has to be resorted to. In regard to treatment, arsenic and Coley's toxins have checked the condition to some extent, but have never cured a case. Dr. Driver's experience with X-ray is most gratifying. The disease usually terminates fatally, and the average duration is about two years.

Analyses, Selections, Etc.

Hemorrhage Controlled by Injection of Human Blood-Serum.

B. S. Barringer, New York, suggested the trial of human blood-serum in a case of unilateral renal hemorrhage because of the brilliant results obtained from its use by Welch in hemophilia neonatorum, and in his case the effect was as immediate and extraordinary.

1. The classes of cases in which serum injections should be tried are (a), in the bleeder; (b), in that class variously termed the bleeding

of unilateral nephritis, renal papillitis or varicose veins of a kidney papilla. In seventy-three of the latter, reports of which he has been able to collect from the literature, there was an operative mortality of 15 per cent. In the attempt to cure this disease, twenty-seven kidneys were sacrificed. The non-operative measures, internal administration of turpentine, injection of epinephrin into the kidney pelvis, seem occasionally to be of benefit but more often they are not. While difficult to say that the serum would have any effect in these cases, it should certainly be tried, both by subcutaneous injection and by direct application to the bleeding point in the kidney pelvis.

2. Hemolytic test. Human blood-serum is injected in small quantities at first, 10 c. c., to 20 c. c., and, because it is injected subcutaneously, some time is required for diffusion throughout the body. If there be any reaction, "serum sickness," another blood-serum may be used and hemolytic tests made. If the blood be obtained from a relative, there need be no fear, and one may give as large a dose as wished. Welch makes the general statement: "Human serum never gives serum-sickness or causes anaphylaxis in the human subject." Certainly serum other than human is given every day without hemolytic tests, for example, diphtheria antitoxin; and while sickness occurs in 20 per cent. of those receiving it, fatal results are rare.

3. Welch's apparatus for collecting blood consists of a glass jar having a cork stopper with two holes to admit two glass tubes. One of the tubes is connected with the needle used for puncturing the vein, the other being used for suction when drawing the blood. In case of emergency, the blood may be collected in a sterile test-tube.

4. Method of administration. If the renal hematuria be part of a diathesis, the serum should be injected subcutaneously. If due to a nephritis, unilateral or bilateral, to a papillitis, to varicose veins of the kidney pelvis, small amounts of serum may be injected through a ureteral catheter. In the latter instance, 5 to 10 c. c. would be sufficient, and diphtheria antitoxin or any other serum used.

5. Quantity. In an emergency 40 to 50 c. c. of any relative's serum should be injected as the first dose, and, if no reaction ensue, following this, in five or six hours, with three or four times that amount. Welch, in the case of a dying new-

born child, gave 10 c. c. three times the first day; and in another case, injected 209 c. c. in five days.

6. The duration of cure is, as yet, unknown. It is possible that this may be influenced by the amount of serum injected. Barringer's patient was given 20 c. c. of rabbit's serum six days after an operation for intestinal bleeding, with the object of controlling any subsequent hemorrhage. Six weeks later, bleeding from the kidney began.

7. Other effects and uses of serum. In addition to its effect on the coagulability of the blood, it is an accepted fact that human-blood serum has a distinct bactericidal action. If the kidney bleeding be caused or accompanied by infection, the serum will help to overcome it. A third virtue is its nutritive value: The patient has had just so much good food. This, of course, is of much more importance in cases of hemophilia neonatorum.—(*Jour. A. M. A.*, October 26, 1912).

Blood-Serum in Hemophilia.

In connection with the foregoing, an editorial in the same issue of the *Journal* has this to say: The use of human or other blood-serums in cases of hemophilia or persistent hemorrhage is proving to be a measure of value. In this issue, four cases are reported by different authors in which human or animal serum was used for various conditions of hemorrhage, the measure apparently being successful in three. The variety of conditions present makes these reports especially interesting. The case of Barringer was one of unilateral kidney hemorrhage which was controlled by the injection of human blood-serum supplied by the brothers of the patient. The case of Reichard was one of spontaneous hemorrhage of the new-born. In this instance normal horse-serum was used. Claybrook's case was one of hemophilia in an infant fifteen months old, who had also bled persistently from a circumcision wound, ten days after birth. In this instance the kind of serum is stated as a "normal serum"; probably horse-serum was used. The child died. The serum was used late after other measures had failed and when such a profound anemia had been produced as perhaps to preclude recovery. The fourth case was one of hemophilia in a boy, aged sixteen. In this instance, as no other serum was at hand or easily obtainable, diphtheritic serum was used, in com-

bination, of course, with other measures. The result was successful. Another case illustrating the variety of conditions in which blood-serum may be used was one reported by C. Koch and W. Klein, the case of a girl of sixteen whose second and third menstruations suggested a hemophilic tendency. The menstrual hemorrhage had kept up for almost three weeks, with spontaneous hemorrhage from the gums and nose. Ordinary measures having failed, the defibrinated blood from a normal parturient was injected and there was no further hemorrhage. The hemoglobin, which had dropped to 20 per cent. during the hemorrhage, by the twentieth day had risen to 55 per cent., and the following menstruation was normal. The blood-findings in this case, a small leukocyte count with unusually high lymphocyte count, suggested the hereditary form of hemophilia. The blood was capable of only slow coagulation. It is suggested by Koch and Klein that the physiologic leukocytosis in the parturient woman may have contributed to the successful outcome in this case. In the case reported by Claybrook, the hemorrhage was from a small wound on the tongue. The blood clotted firmly but the hemorrhage did not stop. Claybrook suggests that the usually accepted conception of this condition may be wrong; that the trouble is not with the blood itself but may be due to a condition of the intima of the vessels. He believes that the intima of the vessels in a normal individual when injured, secretes or throws out a material that agglutinates and seals up the broken ends of the vessel and thus stops the hemorrhage. In the hemophiliac, this property or function of the cells of the intima may be lacking, resulting in a continuance of the hemorrhage. This theory is deficient in that it does not explain the effect of the injected serum in stopping the hemorrhage. The procedure seems to be of value in a considerable variety of cases which often prove intractable to other measures.

Chorioepithelioma Malignum.

Wm. H. Dukeman, Los Angeles, Cal., presents the history of a case of chorioepithelioma malignum that he treated successfully, so far as could be judged two months after the operation, until which time there had been no relapse. This tumor is a spongy growth that develops in the body of the uterus following abortion or labor. Fatal metastases develop in other parts

of the body. The growth consists of blood spaces surrounded by a cellular wall of clear cells of the chorion and syncytial masses enter the syncytial cells of the chorion and syncytial masses enter the blood-vessels and cause the metastases. In some cases it begins following a hydatid mole. The etiology is obscure. It occurs five to seven weeks after labor and from several weeks to five years after a hydatid mole. The prominent symptom is profuse hemorrhage, followed by foul discharges from broken down tissues. The only possible treatment is early operation, with removal of a part or the whole of the uterus.—(*Medical Record*, September 23, 1911).

Book Notices.

The Practitioner's Visiting List for 1913. Lea and Febiger, Philadelphia and New York. Price, \$1.25. Thumb letter index, 25 cents extra.

The Physician's Visiting List for 1913. P. Blakiston's Son & Co., Philadelphia. Price, \$1 to \$2.50, according to style.

Both of these Visiting Lists are so well known to the general practitioner, that we simply announce their issuance, and state that they are of flexible leather and wallet-shaped, suitable to be carried in the pocket. Both contain tabulated and condensed information which may prove helpful from time to time.

Editorial.

The Medical Society of Virginia

Held its forty-third annual meeting in the auditorium of the Monticello Hotel, Norfolk, October 22-25, 1912, with a registered attendance of two hundred and seventy-nine doctors. From the standpoint of scientific interest and the splendid entertainments given, the recent meeting will take its place among the best that have been held for several years.

The first night's session was opened with prayer by the Rev. Dr. Melton. Hon. W. R. Mayo, Mayor of Norfolk, delivered a most cordial Address of Welcome, this being responded to for the Society by Dr. A. B. Greiner, of Rural Retreat. Dr. Hugh M. Taylor, of Richmond, followed with his Presidential Address, which appeared in the last issue of the *Semi-Monthly*, published about the close of the meet-

ing. The various standing committees and officers then made reports, which were referred in order to the Executive Council for recommendation. Proceedings for the evening were brought to a close with an address by Dr. R. S. Martin, of the Rawley W. Martin Memorial Association, on the life of Dr. Rawley W. Martin.

The papers of the Symposium on *Gastric and Duodenal Ulcers*, which had been selected as the subject for general discussion at this meeting, appear in this issue, and, it may be added, the majority of other papers read have been promised and will appear in succeeding issues of the *Semi-Monthly*.

Dr. Wm. S. Gordon, of Richmond, was named as Historian of the Society, to complete the History of Medicine in Virginia, a work for which his predecessor, Dr. R. M. Slaughter, had gathered much valuable data, but was unable to finish because of ill health. The secretary was directed to secure the means for this purpose from private subscriptions.

In keeping with a suggestion originating with the American Medical Association, through its Committee on Uniform Regulation of Membership, a resolution was adopted whereby the fiscal year of the Society will, beginning January 1, 1913, coincide with the calendar year.

During the Norfolk session, forty-four new members were elected.

Report of the retiring treasurer, Dr. Greer Baughman, who declined renomination, showed there were over three hundred members who were delinquent for six dollars or more in the payment of annual dues, and the incoming treasurer was instructed to appoint such assistants as he deemed necessary to aid him in collecting these dues, and to allow 25 per cent. of the amount collected, if necessary, for such purpose.

A resolution was adopted instructing the treasurer to print the following in conspicuous type on his bill-head:—

Any member who shall owe in dues to the Society as much as ten dollars on March 1, 1913, eight dollars, or more, on January 1, 1914, or six dollars after March 1, 1914, shall be dropped from membership in the Society.

A resolution was also adopted directing the Committee on Transactions to publish no paper exceeding twelve pages of matter, printed in the usual style and type as that in former issues.

The following officers and standing committees were nominated by the Executive Council,

and were elected by the Society without dissent—*President*, Dr. Southgate Leigh, Norfolk; *Vice-presidents*, Drs. H. Stuart MacLean, Richmond, M. M. Pearson, Bristol, and Robert C. Randolph, Boyce; *Secretary*, Dr. Paulus A. Irving, Farmville; *Treasurer*, Dr. Mark W. Peyser, Richmond. Drs. I. E. Huff, Roanoke, and Jos. Grice, Portsmouth, were made members of the Judiciary Committee, to succeed Drs. Leigh Buckner and C. T. Parrish; Dr. Greer Baughman, Richmond, succeeds Dr. M. W. Peyser on the Membership Committee; and Dr. J. H. Ayres, Accomac, takes the place of Dr. McGuire Newton on the Legislative Committee. The Necrological Committee remains unchanged, as does also the Committee on Publishing the Transactions. Dr. J. Shelton Horsley, Richmond, with Dr. Stuart Michaux as Alternate, succeeds Dr. C. M. Miller as one of the delegates to the American Medical Association. Dr. John W. Preston, Roanoke, was nominated to the Governor from the State-at-Large to fill the vacancy caused by the death of Dr. Rawley W. Martin on the Medical Examining Board of Virginia. Honorary membership was conferred on Dr. R. M. Slaughter, Alexandria, and on the retiring president, Dr. Hugh M. Taylor, Richmond.

The next place of meeting will be Lynchburg, the exact date to be determined later. The subject for general discussion will be *Tuberculosis*, subdivided as follows: Diagnostic Methods, Dr. G. Paul LaRoque, Richmond; Prophylaxis, Dr. A. W. Freeman, Richmond; Dietetic Treatment, Dr. J. J. Lloyd, Catawba Sanatorium; Medical Treatment, Dr. Stephen Harnsberger, Catlett; and Surgical Treatment, Dr. Jos. T. Buxton, Newport News.

Drs. E. C. S. Taliaferro, Norfolk, Joel Crawford, Yale, John R. Garrett, Roanoke, and R. H. Woolling, Pulaski, were the newly elected Councilors from the second, fourth, sixth and ninth districts, respectively, while Dr. Powhatan Moncure, Bealeton, succeeds Dr. Stephen Harnsberger from the State-at-Large. Dr. J. S. Irvin, Danville, was re-elected chairman, and Dr. A. L. Gray, Richmond, Secretary, of the re-organized Council.

During the meeting, Drs. Southgate Leigh and his associates, Drs. James H. Culpepper and Harry Harrison, tendered the members of the Society a reception and vaudeville at the Country Club. Through the courtesy of Drs. Charles

T. Hibbett and W. M. Garton, Medical Officers in Charge, who have done much during their administration to cement friendship between the local profession and the Naval Medical Service, an invitation was extended to inspect the U. S. Naval Hospital, at Portsmouth, for which purpose launches were provided. During the visit, clinics were held by several members of the staff, after which an elegant luncheon was served. An enjoyable "Oyster Roast" was likewise given at Cape Henry by the profession of Norfolk. Visiting ladies were entertained at the Country Club.

National Association for the Study of Pellagra.

At the meeting of the Association in Columbia, S. C., early in October, the large number of papers read, treated of the various phases of pellagra, and some important observations were brought out. The conclusions, however, would seem to indicate that we yet have much to learn as to the cause, transmissibility, epidemiology and treatment of this scourge. Although some remarkable results from medicinal treatment were reported, the general impression was that drugs had little effect on the progress of the disease, and, at this time, the factors generally producing the best results are rest, diet, hydro- and psychotherapy, and such symptomatic remedies as the case might demand.

The following officers were elected:—*president*, P. A. Surgeon, C. H. Lavinder, of the Public Health Service; *vice-presidents*, Capt. J. F. Siler, M. C. United States Army, and Dr. C. C. Bass, New Orleans; *secretary*, Dr. J. W. Babcock, and *treasurer*, Dr. J. A. Hayne, both of the latter of Columbia, S. C. The time and place of next meeting is to be decided later by the president and board of directors.

Hookworm Inspectors Hard at Work in Virginia.

Dr. Allen W. Freeman, Assistant State Health Commissioner, in his quarterly report, announces that in Bedford, Franklin, Henry and Patrick Counties, during the past three months, over twelve thousand persons were examined for hookworm disease, and treatment was administered to four thousand one hundred and thirty-four of this number who were found to be infected.

This excellent work is accredited to Drs. W.

A. Brumfield and K. E. Miller, who had charge of the dispensaries in these counties, and who frequently worked twelve hours a day to examine the large number of people who came for treatment. Specimens were examined microscopically in all cases. Dr. Miller will shortly open a dispensary in Caroline County, while Dr. Brumfield will take up the work in the extreme southwestern part of this State.

The Southern Medical Association

Will hold its annual meeting in Jacksonville, Fla., November 12-14, 1912, Dr. J. M. Jackson, of Miami, Fla., presiding. Dr. Seale Harris, of Mobile, is secretary-treasurer, and chairmen of the various sections are Dr. C. C. Bass, New Orleans, Section on Medicine; Dr. H. T. Inge, Mobile, Section on Surgery; Dr. M. Feingold, New Orleans, Section on Ophthalmology, and Dr. Oscar Dowling, New Orleans, Section on Hygiene and Preventive Medicine.

The Association was organized six years ago with membership limited to the six southeastern states, and last year, the constitution was so amended as to provide for admission of members from *all* the Southern States. An interesting program will be interspersed with pleasant entertainments.

Common Drinking Cups Abolished.

A recent order of the United States Public Health Service prohibits all common carriers engaged in interstate traffic from providing any drinking cup, glass or vessel for common use, except when it is thoroughly cleansed by washing in boiling water after use by each individual. It further requires that all water on such trains or vessels shall be certified as to its purity by health authorities of the State from which it is drawn, and that all water containers shall be scalded with steam at least once a week.

Commissioned medical officers of the Public Health Service were also recently instructed that, when traveling under official orders, they shall make note of the sanitary condition of trains, vessels, stations and wharves. These observations, to be reported to the Bureau of the Service, will aid in ascertaining the sanitary conditions of common carriers engaged in interstate traffic.

The American Surgical Association

Has appointed a committee consisting of Drs. William L. Estes, South Bethlehem, Pa.; Thomas W. Huntingdon, San Francisco, California; John B. Walker, New York City; Edward Martin, Philadelphia; and John B. Roberts, Chairman, 313 South Seventeenth Street, Philadelphia, to report on the Operative and Non-operative of Closed and Open Fractures of the Long Bones and the value of radiography in the study of these injuries.

Surgeons, who have published papers relating to this subject within the last ten years, will confer a favor by sending two reprints to the Chairman of the Committee. If no reprints are available, the titles and places of their publication are desired.

The South Piedmont (Va.) Medical Society

Will hold its next semi-annual session in Lynchburg, Va., November 19, 1912. Dr. H. S. Belt, of South Boston, is president, and Dr. George A. Stover, of the same place, secretary. The meeting promises to be as interesting and enjoyable as usual.

The Southside Virginia Medical Association

Will hold its last quarterly meeting for 1912 at Lawrenceville, Tuesday, December 10th. The president and secretary of the Association are Drs. J. E. Rawls, Suffolk, and E. F. Reese, Courtland, respectively.

Dr. A. G. Brown, Jr.

The many friends of Dr. Brown, of this city, will be glad to learn that he has improved so rapidly since his recent illness, that he is again able to resume his professional work.

The Association of Surgeons of the Seaboard Air Line Railroad,

At their eleventh annual convention held in Tampa, Fla., the last of October, selected Petersburg, Va., for their 1913 meeting. This is the home of the chief surgeon of the road, Dr. Joseph M. Burke.

The following officers were elected:—president, Dr. John H. Miller, Cross Hill, S. C.; vice-presidents, Drs. H. A. Burke, Petersburg, Va., S. R. Benedict, Athens Ga., and J. D. Ingram, McBee, S. C.; and secretary-treasurer, Dr. J. W. Palmer, Ailey, Ga.

The Mississippi Valley Medical Association,

At its meeting held in Chicago, the latter part of October, decided upon New Orleans, La., for next year's meeting, and elected the following officers:—president, Dr. Albert E. Sterne, Indianapolis; vice-presidents, Drs. D'Orsay Hecht, Chicago, and Hugh Cabot, Boston; secretary, Dr. Henry Enos Tuley, Louisville, Ky., and treasurer, Dr. Samuel C. Stanton, Chicago. Both of the latter officers were re-elected.

The University College of Medicine,

Of this city, in appreciation of the assistance rendered by citizens of Richmond in erecting a new building in place of the one destroyed by fire in 1910, formally opened the institution for the inspection of its friends on the evening of October 28th. All departments of the school were in full operation and open to the public, and the Board of Trustees and Faculty of the College took advantage of this occasion to present the president, Dr. Stuart McGuire, with a silver service in appreciation of his invaluable services to the school. There are two hundred and sixty-three students matriculated at the college this year.

The Virginia Public Health Association

Held its annual meeting in Norfolk, in conjunction with the meeting of the Medical Society of Virginia, Dr. E. C. Levy, of Richmond, presiding. The officers elected for the next meeting to be held in Lynchburg are: president, Dr. P. S. Schenck, Norfolk; vice-presidents, Dr. O. C. Wright, Jarratt, and E. F. Reese, Courtland; secretary-treasurer, Dr. Lucien Lofton, Emporia, and assistant secretary-treasurer, Dr. W. F. Driver, New Market.

The Petersburg (Va.) Health Department,

In its monthly report ending October 26th, gave the total number of deaths reported as thirty-nine, and births as fifty-five. The mortality rate is the smallest reported in that city for the corresponding month, in many years.

Eastern State Hospital Annual Report.

Dr. G. W. Brown, Superintendent of the Eastern State Hospital, in his annual report, calls attention to the need of a separate institution for drunkards and those addicted to

drugs. This provision has for several years been urged also by Dr. J. C. King, of the Southwestern State Hospital.

An interesting statement in the report, in view of the present high cost of living, is the reduction per capita of \$9.63 in the cost of maintenance for the year.

The Clinical Congress of Surgeons of North America

Will hold its third annual session in New York City, November 11th to 16th, 1912, under the presidency of Dr. Albert J. Ochsner, of Chicago. Surgical clinics will be held in the mornings and afternoons, at various hospitals in New York and Brooklyn, and papers will be read and discussed at sessions to be held in the evenings.

Dr. W. H. Coffman,

Of this city, has moved his offices to 708 West Grace Street.

The United States Civil Service Commission

Announces an open competitive examination, November 20, 1912, for mine surgeon. Applicants must be under forty years of age, and show not less than three years' post-graduate experience in medical and surgical practice about coal mines, including mine accidents, occupational diseases of miners, etc. From the register of eligibles resulting from this examination, certification will be made to fill a vacancy in the Bureau of Mines, at a salary ranging from two thousand to three thousand per annum. Doctors desiring examination, should communicate with the above Commission, at Washington, D. C., at once, for further requirements.

Obituary Record.

Major-General Robert Maitland O'Reilly,

Formerly Surgeon-General of the United States Army, died at his home in Washington, D. C., November 3rd, of uremic poisoning. He was born in Philadelphia, in 1845, and received his medical education at the University of Pennsylvania, from which he graduated in 1866. He commenced his military career in the Civil War, which he entered as a military cadet, and continued in active service until 1909, being Surgeon-General at the time of his retirement.

THE Virginia Medical Semi-Monthly.

(FORMERLY VIRGINIA MEDICAL MONTHLY.)

Vol. 17, No. 16.
Whole No. 400

RICHMOND, VA., NOVEMBER 22, 1912.

10 Cents a Copy.
\$2.00 a Year.

Original Communications.

TRADITION VERSUS EMBRYOLOGY IN CON- GENITAL MALFORMATION.*

By STUART McGUIRE, M. D., Richmond, Va.

Professor of Clinical Surgery, University College of
Medicine.

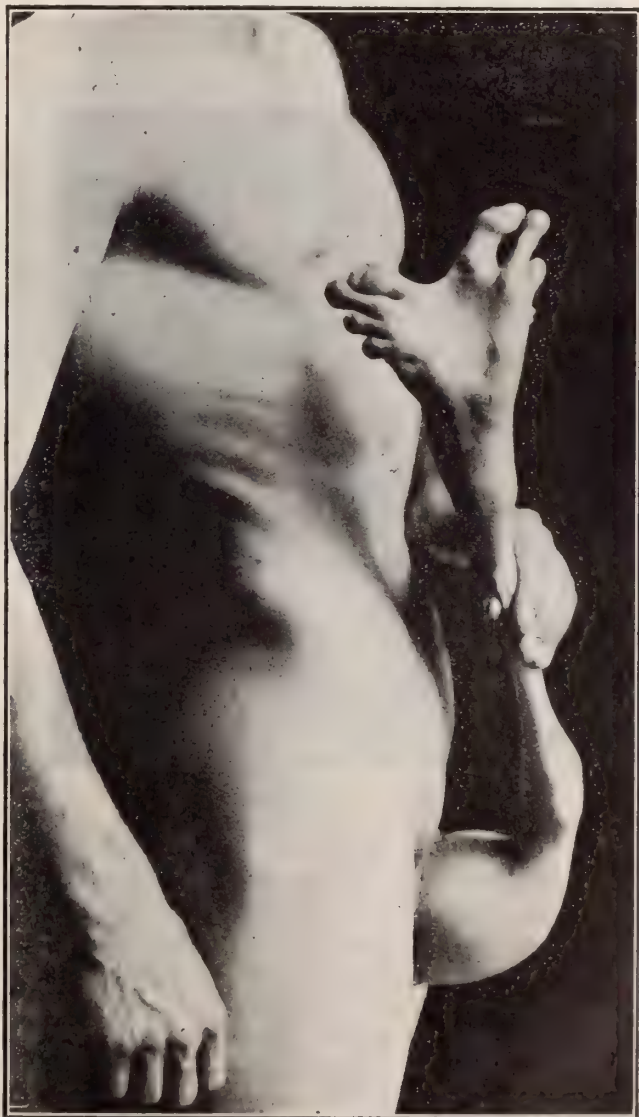
"And Jacob took green rods of poplar and of almond and of plane trees and peeled them in part; so when the bark was taken off in the parts that were peeled, there appeared whiteness; and the parts that were whole remained green; and by this means the color was divers; and he put them in the troughs, where the water was poured out, that when the flocks should come to drink they might have the rods before their eyes, and in the sight of them might conceive. And it came to pass that in the very heat of coition, the sheep beheld the rods, and brought forth spotted, and of divers colors, and speckled."

Seventeen years ago a baby with three legs was brought to my father, Dr. Hunter McGuire, for examination and advice as to treatment. The mother attributed the deformity to a maternal impression. She stated that one day when she was about eight weeks pregnant she heard strange noises in her kitchen. None of the other members of the family were in the house and although alarmed she determined to investigate the cause of the disturbance. Going to the kitchen she threw open the door and discovered a man having sexual connection with her cook on the floor. She seized a stick and belabored the couple until they fled from the house.

The shock of the incident was very great and for weeks she was nervous and hysterical. When awake she constantly recalled the sight of exposed anatomy and at night her dreams were filled with visions of moving legs. She dreaded the effect on her unborn child and her fears seemed realized in the deformity already mentioned.

On examination the baby was found to be

healthy and well developed. He had three legs of equal size and length. The extra limb was attached to the pubis above the penis. Except



PHOTOGRAPH OF PATIENT.

*Read before the forty-third annual meeting of the Medical Society of Virginia, at Norfolk, Va., October 22-25, 1912.

for a double foot it was symmetrical with the other legs. When the child lay on his back he

kicked vigorously with all three legs and sucked the toes of each with perfect impartiality.

The case was exhibited at the clinic of the University College of Medicine and at the time attracted much attention. My father advised the woman to take the boy home and return when he was two or three years old to have the superfluous leg amputated.

Nothing further was heard of the case until last June when the patient walked into my office. He was a stalwart youth, evidently accustomed to outdoor work, and weighed about one hundred and fifty pounds. His general health was excellent but the extra leg, he said, was a nuisance and he wanted to get rid of it.



X-RAY OF PELVIS.

On stripping the boy I found he carried the third leg extended on his abdomen and chest, the limb being kept in place by means of a strap which encircled the body. Owing to long disuse the leg was much emaciated but its length was approximately that of the other limbs. The leg was attached to the patient's body by three bony processes, a median and two lateral. They sprang from the anterior surface of the pubic bones and united in a knob that formed the acetabular cavity.

The head of the femur was perfectly formed. The knee-joint was normal except that it had no

patella. The foot was deformed and had nine toes. The accompanying photograph and X-ray pictures give a better idea of the patient's condition than any verbal description.

I operated on the boy at St. Luke's Hospital on June 18, 1912, incising the soft structures and cutting the bony attachments to the pelvis with a chisel and mallet. The patient made a rapid and uninterrupted recovery and a recent letter states that he is now well and doing manual work on the farm.

The case is reported partly because it is unusual and interesting, but chiefly because it again raises the much discussed question of the influence of maternal impressions on fetal development.

Belief in the efficacy of some profound impression upon the mother to produce upon the body of her unborn child a direct and definite effect coinciding more or less accurately with the object causing the impression, began apparently with the dawn of history and in certain quarters exists today with scarcely less prestige than it did a thousand years ago.

The biblical incident recording the success of Jacob's stratagem with the peeled rods reads no more strangely than the gravely recited case of a great present-day authority whose pregnant patient, after being seized by an ear and dragged about the room by her drunken spouse, gave birth to a child having a triangular piece lacking from the corresponding lobe.

In the realm of fiction and philosophy we find Dickens, Goethe, Scott and others of equal note apparently firm adherents of the impressionist idea, and the great mass of medical testimony of their day decidedly of their point of view. Even at the present time we find cases of supposed maternal impression reported so frequently in our scientific journals that one questions why there is either not a world full of monsters or else a race of rare and radiant beings moulded at will by professional guardians of impressionable mothers. Associated with the belief in maternal impression is a cloud of superstition with reference to the nature and the cause of monstrosities. The purposes of this paper do not permit even mention of the various fanciful theories which attributed the origin of terata to the sport of the gods, to the anger of offended deity, to cohabitation with Satan,

to a malign stellar assemblage, or to one or another of a hundred more causes.

With the discovery of the ovum and the advent of modern embryological research, the theory of maternal impression suffered some decline, but the stubborn recurrence of fresh "proofs" has invariably fanned the flame when-



X-RAY OF KNEE JOINT.

ever it seemed in serious danger of flickering out. As we have said these proofs are still accumulating and the result, in our own day, is that while the theory has lost many adherents, particularly in the professional ranks, it is still firmly rooted in the minds of the laity, and indeed yet claims the serious attention, if not the actual outright belief of many trained medical men. An examination of numerous obstetric texts of recent years reveals a degree of credulity astounding to the modern scientific enquirer. So considerable an authority as Hirst states in his fifth edition that there are "well authenticated cases of congenital defects or peculiarities" which "bear too startling a re-

semblance to the cause of the impression upon the mother during pregnancy to be dismissed as mere coincidence." Many more names might be added to the list and from the rank and file of the profession might easily be collected a legion of those who have observed in private practice enough to win them to the ancient superstition.

These men are as earnest and as thoughtful as we and it is by no means the effort of this paper to cast ridicule upon those who honestly hold to convictions opposed to our own; at the same time the subject is of such practical importance that if we can show the impressionists the error of their way we shall have served many anxious mothers well and gained a step amply repaying the loss of a few broken idols. The pregnant woman already has to endure enough without being constantly harried with the dread that some temperamental excess will stamp her child for life or cause her to bring into the world a monster from which man will hide his gaze.

Would it not be a boon to the expectant mother to have it authoritatively stated that she can now dismiss at least this one danger of her pregnancy? Is it not time for us to realize that we are sheltering a superstition and encouraging unnecessary fears, instead of relieving the mental stress of a class of patients often painfully in need of a comforting word?

At the outset it is well enough to admit that as yet the embryological evidence advanced in contradiction of the impressionistic idea is neither clear nor definite, though it is of sufficient weight to warrant the belief that we are actually approaching an understanding of some hitherto baffling problems involving not alone this idea but the whole vexed question of heredity itself. At the same time it cannot be denied that when the negative results of maternal impressions are ignored, as is persistently done, and the long list of cited cases are considered on their face without regard to whether or not they clash with scientific probability as justified by modern research, the argument might well be convincing to the laity, and even to the members of the profession who by habit or inclination have come to value their eyes and ears more than their microscopes.

A careful study of the cases reported in the

past and a close scrutiny of the instances likely to arise in the future will show that in the vast majority the impression which was supposed to have left its mark upon the fetus occurred long after the development of the affected part. Embryologists have proved rather conclusively that the matrix of the new being is laid down during the first five weeks of intrauterine life and that



X-RAY OF FOOT.

thereafter the process is concerned no longer with the production of new parts but chiefly with the mere growth of those already formed. In other words organogenesis takes place before the mother even knows she is pregnant and impressions occurring thereafter can no longer affect the type, certainly so far as multiplicities are concerned.

When due consideration is given to the negative evidence against the theory, the cases cited in its support seem pitifully few and inadequate. Indeed we have right here what to most of us is sufficient to dispose of the assumption, for to view on the one side the vast number of

unimpressed and on the other the isolated few who bear the stamp gives us ample warrant for the conclusion that the few are the result of chance and not of rule. There is in all the realms of science no natural process that deals only in exceptions, and when we meet such a situation we can safely question and refuse to accept. Were the impressionistic theory true, as many believe, then would we be wondering and worrying, not over those afflicted as we do now, but over the good fortune of those who escaped.

But though we accept the evidence of the many we must somehow account for the few and therefore what is the "chance" to which we have attributed their existence? The appeal to "coincidence" often cloaks mere ignorance, but we employ the word here deliberately and with full regard for the improper uses to which it has so frequently been put. With the existence on the one hand of a series of possible irregular forms of development and on the other a series of possible impressions upon the pregnant woman, does it seem strange that occasionally the two series should coincide?

There are many deep-rooted superstitions founded upon just this coincidence. No argument however profound can convince the old woman whose "man" gave up the ghost soon after a sparrow perched upon the window ledge and pecked at the pane. "*I seen it*" is her sole, withering and all-satisfying answer, and it must be admitted that to those who judge all things by the evidence of their own eyes and ears the appeal is a powerful one. And yet with window-pecking sparrows surrounding us and Death ever lurking near, it appears not unreasonable to believe that once in a while the visitation of the Grim Reaper and the curiosity of the sparrow should coincide.

Before passing from this point it may be remarked also that the pregnant state is peculiarly adapted to unintentional self-deception and that many of the cited cases cannot even claim the dignity of coincidence being merely *ex post facto* explanations suggested by the deformity. In other words, we can find that the deformity produces the impression in many instances instead of the impression producing the deformity. When a woman discovers in her child some peculiar mark it is easy enough to

search through nine months of incidents, impressions, dreams, emotions, fears and what not and find something remotely resembling it.

The discovery of the reduction and division of the chromosomes and the realization of its immense importance as the basis for a satisfactory theory of heredity marked an important advance and as Piersol says "has given to our knowledge of fertilization an almost mathematical precision and supplied an accurate morphological basis for our understanding of heredity." We seem here on the very threshold of that long-sought scientific knowledge of the laws governing the transmission of peculiarities from generation to generation.

As for the aberrant types and the variations which are not transmitted from generation to generation but are peculiar to the individual in question, in other words, those often claimed to have been "impressed" upon the fetus through the mind of the mother, the biologist also has his authoritative word.

It has already been noted that the details of the organism are determined in miniature in the early weeks before the woman even realizes she is pregnant. It should also be stated that during this early period, before the placenta has developed, there is no organic connection between the segmenting ovum and the parent. Except that the one rests within the other, the two in the human being during this early period are as distinct as the chicken egg from the hatching hen. This being true, it is difficult to see how impressions could pass between the two. Later on, after the placental circulation has developed and the child begins to thrive off the mother, there is indeed a definite connection, but now the embryonal or developmental stage has been passed and the stage of new growth begun. Hence, even were the organic connection complete, impressions could no longer affect the fetus in the sense of producing multiplicities or duplicities, though they might place their stamp upon organs or parts already formed. But the organic connection is by no means complete. There is absolutely no link between the nervous system of the mother and that of her offspring, and since the impressionist evidently assumes that the external cause operates through the mind of the parent, we are at a loss to see how it bridges this gap. While the mother bears her child she merely

supplies it with the food necessary for its growth. There is even no admixture of blood, the transmission being effected by osmosis through a definite membrane which may be demonstrated under the microscope. If the hen could speak we would probably learn vastly more of the impressionists' side of the case, since monstrosities are much more common in birds than in mammals, and the process must be much more complex, the egg lying entirely outside the body and the "impression" having, therefore, to travel a long distance through feathers, space and shell. Similarly the incubator, were it not dumb, might throw much light on the problem and entertain us with an account of the impressions which it transmitted to the artificially hatched chickens in which strange deformities are so often found.

And now what can we say of the real cause of these anomalies? "They are the result," says Ballantyne, "of disorderly embryology, or disturbed ontogenesis and organogenesis; many of them are arrested developments and represent the stage which ought to have been temporary in ontogenesis, but which have remained stationary while other and neighboring parts were pursuing the path of normal development." The marvellous combinations and recombinations by which the three primary blastodermic layers are woven into the human texture certainly offer enough field for an occasional incongruous thread, particularly when it is remembered that the loss of a few cells in the embryonic period may mean the absence of the entire organ into which they would subsequently have developed. Hence it needs no cataclysm to produce "disorderly embryology" and the influence of several definite factors has been more or less definitely proven. The germ plasma itself may be defective. Intrauterine pressure, and even external traumatism, may so disturb the fetus as to affect its development. Malposition of the fetus *in utero*, abnormal diminution of the amniotic space and adhesion of the membrane to the fetal parts may all profoundly affect development, as has been proven by numerous authenticated cases.

Finally, the state of the fetus may be seriously affected by the general condition of the parent. It is conceivable that a profound shock might so severely affect the health of the mother as to impair the decidual circulation and

thus harm the child by an insufficient supply of food-laden blood. The disturbance may be so severe as to produce outright abortion or it may be less severe and merely cause defective growth. But this is a very different thing from shocking into existence a new leg or a frog-like head when both leg and head have already been normally and perfectly developed.

With reference to the case cited at the beginning we, therefore, attach no significance to the mother's explanation, preferring to believe that it is but another instance of "disorderly embryology" in the production of which external impressions had no part.

SOME REMARKS ON OBSTETRICS—WITH REPORT OF CASES.*

By WM. CLAIBORNE POWELL, M. D., Petersburg, Va.

The remarks in my paper, as the title implies, will not pertain to normal, but to abnormal labor, the anomalies of labor, as it is from this class of cases that we learn the most. Any "old granny" may manage a normal case, when everything goes aright, but it requires the skill and best judgment of the experienced obstetrician to successfully manage the abnormal and complicated cases, which every doctor will at times see in his practice.

Among the anomalies in the forces of labor may be mentioned, first, deficient power of the uterine muscle—inertia uteri; second, excessive power in the expulsive forces of labor; third, excess in the resistant forces of labor; fourth, deformities of the pelvis. Comprehensive and satisfactory knowledge of the deformities in the female pelvis has only been gained in the last half century. It is difficult to estimate the frequency of pelvis sufficiently deformed to influence decidedly the course of labor. Deformities of the female pelvis may be detected by the history of the patient, by her appearance, by palpation of the exterior and interior of the pelvis, and by external and internal measurements; the use of the pelvimeter. Fifth, tumors of the genital canal, carcinoma of the cervix. In a large proportion of cases, cancer of the cervix interrupts gestation at various stages, but in a certain percentage (sixty-six, according to Müller) the pregnancy goes to term. Fibroids of the uterus and cervix, low

enough in the situation to be incarcerated in the pelvis, are likely to constitute insuperable obstructions in labor, besides complicating parturition by favoring abnormal positions of the child, by predisposing to adherence of the placenta, to prolapse of the extremities and cord, and to hemorrhage during and after labor. Sixth, excessive overgrowth of the fetus. The causes of overgrowth of the fetus are prolongation of pregnancy, oversize and advanced age of one or both parents, and multiparity. Overgrowth of the fetus is the most difficult condition in obstetric practice to diagnose with precision. No single rule of treatment can be laid down for the management of these cases. Forceps, version, or some form of embryotomy is usually demanded. Spontaneous delivery, however, is possible even in cases of monstrous bulk, in which delivery through the birth-canal would seem impossible. We come now to the report of my cases:

Case 1.—Xiphopagus, or double monster. This case was reported by me in the *Virginia Medical Semi-Monthly* of December 23, 1904, as follows: Mary P., colored, age 38, multipara, was taken in labor on Sunday, September 11, 1904, at 3 P. M. I was called by phone, and, being out of town, Dr. L. S. Early was called in, and upon arriving and making the usual examination, he found a breech presentation, four feet presenting. Thinking he had a case of twins to deal with, he determined to wait and give nature a chance. As the labor progressed he discovered there was only one body. The four arms were brought down, and the two heads coming down, resting against the pubic arch, stopped there. Thinking he would have to amputate one of the heads, he sent for his instruments, and, while resting and waiting, the two heads were born spontaneously; two full-term, still-born, twin girl babies, having two heads, four arms, four legs, and only one body. There was only one placenta. The thoracic and abdominal cavities were united, the ribs extending across from one to the other. The mother made a good recovery, and has since given birth to two normal, healthy babies. The father of these babies was half white, and the mother a full-blooded African.

Case 2.—Hydrocephalus is the most important of the diseases increasing foetal bulk. It is not very rare; Schuchard found it sixteen times in 12,055 births; is often overlooked, and a fre-

*Read before the forty-third annual meeting of the Medical Society of Virginia, at Norfolk, October 22-25, 1912.

quent cause of ruptured uterus. Hydrocephalus should always be suspected if the head, in labor, remains above the brim, although the pelvis is normal in size and no good reason can be found for the failure of engagement. The writer has seen one such case: Mrs. R. H., white, age 30, multipara, was taken in labor at 4 P. M., June 14, 1908. I was called at 7 P. M., and, upon examination, found a breech presentation. She was bearing down her pains well, and appeared to be in great distress. The labor progressed rapidly, and at 9 P. M. the child was born, except the head, which appeared to be very large and freely movable within the uterus. Several times the forceps were applied, and each time they slipped off. I sent for another doctor, and, upon consultation with Dr. E. J. Nixon, we decided that the head could not be born, and that we would have to resort to operative measures. With a pocket knife, sterilized, I proceeded to do a craniotomy. Introducing the knife with the index finger of my right hand as a guide, I made an incision into the posterior fontanel, cutting both ways, when the water gushed out in a large quantity, reducing the size of the head, which was then easily delivered. The woman lived five days, and died from uremia.

Case 3.—A child born without arms. In a careful search of the literature, I have failed to find anything like it described. Mrs. W. B. P., white, age 30, primipara, was taken in labor at 4 P. M., February 22, 1911. I was called by 'phone at 7 P. M., six miles from town; arriving there at 8 P. M., and making the usual examination, found a breech presentation. The os was dilated to about the size of a half dollar. The bag of waters had not yet ruptured. The woman appeared to be in a normal condition, and I determined not to interfere unless necessary. She bore down her pains fairly well, and at 12:30 A. M., a male child was born, which appeared to be well-formed, with the exception that he had no arms; two miniature hands coming off from the shoulders, somewhat resembling the wings of a young bird just leaving the nest and beginning to fly. The child lived about twenty-four hours. I never knew the cause of death. The mother made a good recovery, and, ten months later, I delivered her of a healthy child.

Case 4.—Hermaphrodite, with ectrophy of the bladder and double inguinal hernia: Mrs. M. L. H., white, age 18, primipara, was taken in labor at 10 P. M., November 18, 1911. I

was called by 'phone at 4 A. M. the next morning, and arrived at 5 o'clock, and, upon examination, found a breech presentation. The bag of waters had not ruptured, and the woman appeared to be in good condition. I ruptured the bag of waters, the os being well dilated, and the labor proceeded very nicely, when at 7 A. M. the child was born. I could not tell whether I had a boy or a girl; the sex was so evenly divided that I was unable to say which predominated. Many operations have been suggested for this condition, which is caused by a failure of the abdominal wall and pubic bones to unite in the median line.

The condition of a patient with ectrophy is pitiable, the urine leaking constantly, and the protruded vesical mucous membrane being liable to inflammation and ulceration. When the child cries, the urine can be seen to issue from the ureters in jets. Upon consultation with Dr. J. G. Rennie, we decided against any operative procedure on account of the frail and delicate condition of the child.

The treatment in this case was simply supportive and protective, with the use of sterile gauze and adhesive plaster, with antiseptic and aseptic precautions. The child lived forty days, and died from exhaustion. The mother made a good recovery.

To recapitulate: All four of my cases were breech presentations. Three of the four were of the white race, and the other one, one-fourth white. Two of the four were primipara, and the other two multipara. I regret that I have not the pictures to show you.

2 Bank Street.

REGISTRATION AND THE FUNCTIONS OF THE STATE EXAMINING BOARD.*

By HERBERT OLD, M. D., Norfolk, Va.
Secretary-Treasurer Medical Examining Board of Virginia.

Two years ago a middle aged man came to this city, his second visit, advertised in the daily papers as a specialist in curing diseases of the mind and body by properly fitting eye-glasses, engaged a suite of rooms in this hotel, employed decoys, and spotters of the means of his numerous patients, received from fifteen to three hundred dollars for a pair of eye-glasses, remained here four or five months, and took away with him, judging by his daily expense account, at

*Read before the forty-third annual meeting of the Medical Society of Virginia, at Norfolk, October 22-25, 1912.

least ten thousand dollars. The grand jury found a true indictment against him, the judge instructed the jury that this man was undoubtedly practicing medicine, but as it was impossible for us to prove that he had not practiced somewhere in Virginia prior to the year 1885 he was acquitted.

The failure of the former medical laws to require that all who were exempted from passing the State Examining Board should be issued a certificate by that Board and that this certificate should be registered in the office of the clerk of the county or corporation court before a license to practice medicine could be issued, has resulted in allowing the people of this State to be preyed upon by quacks and irregulars *ad libitum*, and it is impossible to enumerate how much harm has been done. So far, three States—Pennsylvania, Texas and Virginia—have included in their laws a clause requiring a registration of each physician before he could be considered a legal practitioner.

In Virginia, a rather peculiar state of affairs was found to exist. There were some men, not many, who were not graduates of any medical school, who were among the pioneers in opening up certain remote regions of the State, who had administered to the ills of many of the people in those sections, apparently to their satisfaction, who had never been found guilty in the courts of practicing illegally, so the General Assembly thought it wise and safe to issue these men a verification certificate, provided they were vouched for by the judge of the circuit court and the commonwealth's attorney of their county, as having practiced medicine in this State prior to 1895, in order to obtain a complete registration.

A verification certificate is also issued to a physician who has been practicing in Virginia prior to January 1, 1885, on his own affidavit to that effect if he is a member of the State Medical Society, or any physician who produces a license to practice medicine, or a verified copy of the same, issued to him by some commissioner of revenue of this State prior to that date. Duplicate certificates are issued to those who have lost their State Board certificates, provided they satisfy the Board of its loss. A fee of 50 cents is charged for the verification certificate, and one dollar for a duplicate certificate. The clerk of the court is allowed one dollar for registering a certificate.

Registration has the following advantages to the practitioner: A duly registered practitioner may assume the title of doctor; he may sue in the courts of law for the recovery of charges for medical attendance or advice, or surgical attendance or advice; he may be exempted from serving on juries and from serving in the militia; he can sign a valid medical certificate, death certificate, and birth certificate. Registration enables persons requiring medical aid to distinguish qualified from unqualified practitioners.

It is a noteworthy fact that there is a deplorable amount of apathy in the medical profession in carrying out any law that is required of it as a body, so the new law makes the book in the office of the clerk of the county or corporation court an official register, and after March 12, 1913, any practitioner who is not registered there is liable to be penalized for practicing illegally. Further, it is the duty of the clerks to send to the Secretary of the Examining Board when requested, a list of all practitioners so registered, and it is incumbent upon the members of the Board to see that the delinquents in their respective districts comply with the law by having them indicted, and also to see that the clerks do their duty.

The functions of the State Examining Board are sundry and manifold. Its powers are derived from the Acts of the General Assembly. It is in no way a medical protection body or guild for any one sect of medicine. It has no power over any one member of the profession unless he is guilty of (a) a crime or misdemeanor, or is guilty of fraud or deceit by which he was admitted to practice; or, (b) unless he is an habitual drunkard or habitually addicted to the use of morphine, opium, cocaine or other drugs having a similar effect, or, (c) if he undertakes or engages in any manner or by any means or ways whatsoever, to procure or perform a criminal abortion as the same is defined by the law of this State; under any such condition the Board has the power to revoke any certificate, or verification certificate granted by it or any other medical examining board of this State.

Primarily, the Board is charged with looking after the standard of medical education in order that the public may be assured an efficient medical service. This Board is the only body that can legally protect the public from the graduates of poorly equipped medical schools. Many of these colleges merely coach their stud-

ents sufficiently to pass the examination of the State Boards, and some of these have to come before the Board five or six times in order to be successful. It is now well recognized that a medical diploma by no means carries with it the assurance that the possessor thereof is qualified to diagnose and treat intelligently human ills, unless it has been obtained from a medical college which demands a certain amount of preliminary education before the student is allowed to matriculate, has adequate laboratory and clinical facilities, a sufficient corps of instructors, and a definite number of hours devoted to lectures on the various branches of medicine. The three schools in Virginia have met these advanced requirements and the new law states that the graduates of any medical school which requires less than the Virginia schools shall not be granted a certificate by the Examining Board; otherwise the students at the Virginia schools would be discriminated against. An exception is made in regard to physicians who have been in active practice for several years in other States as regards the preliminary requirements and the number of years devoted to medical studies. Consequently, the Board is a bureau of information to students who intend to study medicine, whether such and such a medical college is in good standing; also as to whether a certificate from a certain high school is sufficient.

The most difficult question the State Board has to decide is that of so-called reciprocity, for it is the exception rather than the rule that a successful man should desire to move his residence from one State into another. Whereas a large majority of the men who have been granted reciprocity by our Board are reputable, there are some who have developed into most flagrant advertisers. We have two in this city and I presume there are some in many other cities of the State.

We believe the fact that most States hold on to the retaliatory measures—you receive our men and we will receive yours—together with a double fee for those seeking reciprocity, is largely responsible for a somewhat loose scanning of the applicant and his credentials. Our Board has taken the stand, which a few other Boards have adopted, that any graduate in medicine who has passed an examination before a State Examining Board satisfactory to this Board—which Board requires substantially the

same medical branches as are required by the Virginia Board—and has practiced two years in said State (but the Board may accept other experience in lieu of two years practice), and has met the preliminary and moral requirements, may be granted a certificate without examination irrespective of whether his own State receives our men. Our Board also charges the same fee for all applicants. We think it unjust to a man who can meet all our requirements to be refused a certificate without examination simply because the State from which he came does not receive our men, for it may be that our State requires the lower standards.

Our Board has discontinued the issuing of temporary permits as they were a veritable bugbear both to the Board and the applicant. We have also ceased to give an oral examination, as we think it wiser to do away with the personal element that of necessity will arise between examiner and applicant. The law rightly forces us to afford each applicant the same chance of passing the examination whether he is or is not a graduate of the so-called sectarian schools, and if we ever arrive at that state in which we can eliminate the sections on practice of medicine, (substituting diagnosis therefor), materia medica and therapeutics, and treatment of surgical diseases (retaining surgical anatomy, pathology and diagnosis), we will then be able to give a sufficient test to all as regards the fundamentals and leave the treatment to be taught in each particular school, whether allopath, homeopath, osteopath, eclectic or chiropractic. We will thus avoid the necessity of separate boards of examiners, and there can then be no cause of complaint from any applicant.

I thought it wise to outline in this brief way what our Board does and is expected to do, for judging from some of the letters that the Secretary receives, many must think that we are a clearing house for personal complaints, and are concerned with medical politics, instead of being the most important member of the public health agencies, as it protects the people from ignorant and inefficient practitioners of medicine.

As regards registration, if every physician will see to it that he himself is a legal practitioner first, and then help his neighbor to become one, our State will soon be free of quacks, irregulars and itinerant persons utterly incompetent to diagnose or treat human ills.

PELLAGRA IN MARYLAND.*

By C. W. G. ROHRER, M. D. Baltimore, Md.

Maryland State Department of Health.

Introductory. The preparation of this paper has been beset with difficulties, because pellagra is not a reportable disease in Maryland. But I have ever been wide awake to the occasion, realizing how important it is to note the appearance of pellagra in certain sections of our State. A fair proportion of the cases were reported voluntarily by physicians, while a careful watch has also been kept over the death records. Although these circumstances are not very favorable for completeness, I question very much if a single case of the disease has been omitted. I have not included the imported cases treated in our several hospitals, but have confined myself to cases of pellagra having their apparent origin within the confines of the State of Maryland.

While I do not wish to weary you with burdensome details, yet there are three Maryland conditions which I wish to discuss briefly before taking up the gist of my subject. These are:

- a. The geographical features of Maryland.
- b. Location and extent.
- c. Climate and rainfall.

In order to draw conclusions from the Maryland cases of pellagra, a knowledge of the above topics is essential. I believe such information will help us toward a better understanding of the etiology of this disease.

Geographical Features. Maryland, the "Old Line State," possesses an almost endless variety of geographical features. Its western part is traversed by the Allegheny and the Blue Ridge Mountains, important ranges of the great Appalachian Chain, whose lofty peaks tower high above the surrounding country. Slightly to the east and southeast of its center, the State is bisected by the Chesapeake Bay, an arm of the Atlantic Ocean, famous for its oysters, its canvas-back ducks, and other sea food and game. Its remote east forms part of the Maryland-Delaware Peninsula, reaching from Mason and Dixon's line to the Atlantic Ocean.

Geographers usually divide Maryland into three regions, as follows:

1. The Coastal Plain;
2. The Piedmont Plateau; and

3. The Appalachian Region.

The Coastal Plain of Maryland forms the eastern part of the State, comprising the area between the Atlantic Ocean and a line passing from the northeastern corner through the city of Baltimore to the city of Washington, D. C. With the exception of the northwestern portion of Cecil County, the Coastal Plain includes all nine counties on the Eastern Shore of Maryland, namely: Cecil, Kent, Queen Anne, Caroline, Talbot, Dorchester, Somerset, Wicomico and Worcester; and portions of Harford and Baltimore Counties, practically all of Anne Arundel and Prince Georges, and Charles, Calvert and St. Marys Counties entire, of the Western Shore, the Chesapeake Bay dividing the State into shores.

The Piedmont Plateau of Maryland extends from the western limit of the Coastal Plain to the base of the Catoctin Mountains, in Frederick County, comprising the greater part of Baltimore County, a narrow strip of land in the extreme north of Prince Georges County, Carroll, Howard and Montgomery Counties in their entirety, and the eastern two-thirds of Frederick County.

The Appalachian Region forms the western part of Maryland, and comprises about one-fifth of the area of the State. The Appalachian region includes all of Garrett, Allegany and Washington Counties and the western third of Frederick County.

Location and Extent. The State of Maryland lies between 37 degrees 53 minutes and 39 degrees, 44 minutes North latitude, and 75 degrees 4 minutes and 79 degrees 33 minutes West longitude. The total area of the State is 12,210 square miles, of which the land surface is 9,860 square miles. Its extreme length, east and west, is 240 miles and its breadth varies from less than three miles in Washington county, at the west, to about 125 miles near the meridian of 76 degrees.

The eastern section of the Coastal Plain, familiarly known as Eastern Maryland, or the Eastern Shore, is in general less than twenty-five feet above sea-level. In the Appalachian region there are mountain peaks which rise to a height of 3,000 feet and more.

Climate and Rainfall. The climate of Maryland, as expressed by a local historian, is "temperate in summer and not violent in winter." This is true, in a general way. As the State is

*Read before the second triennial meeting of the National Association for the Study of Pellagra, held at Columbia, S. C. October 3-4, 1912.

varied in its physical features, so it is correspondingly diverse in its temperature. In most places it is healthful; although the lowlands bordering the Chesapeake Bay and its estuaries were formerly malarious, on account of the mosquito-laden air of the marshes.

In the lower eastern and southern sections of the State the average temperature is 40 degrees in winter and 77 degrees in summer. In the higher lands to the west and north the average for winter is 27 degrees and for summer 70 degrees.

The annual rainfall varies from twenty-five to forty-eight inches, according to locality. Precipitation is heaviest on the eastern slope of the Catoctin Mountains, which range acts as a natural barrier to the moist easterly winds from the ocean, and on the shores of the Chesapeake Bay. In the more elevated regions to the westward of the State, the rainfall is less abundant. In general, the greatest precipitation occurs in the spring and the late summer.

Number of Pellagrins. Down to the present writing (September 25, 1912), there have been 31 cases of pellagra accredited to the State of Maryland. Nine of these individuals developed the disease in the city of Baltimore, while 22 were county cases. All have occurred in the Coastal Plain and in the Piedmont Plateau, where the rainfall is greatest and the soil composed of sands, clays, loams and marls. Not a single instance of the disease has been found in the higher, drier, more elevated portion of the State, known as the Appalachian Region.

Historical Note. The first recognized case of pellagra in Maryland was seen by Dr. William S. Thayer, of the Johns Hopkins University, on the 18th of November, 1905. This patient presented a peculiar line of symptoms, which were diagnosed pellagra by Dr. Thayer. The patient was a well-to-do white lady, aged 57 years, house-wife by occupation, living about fifty miles from the city of Baltimore.

The second of the Maryland pellagra cases was also seen by Dr. Thayer, at the Johns Hopkins dispensary, May 14, 1909. A third case, a patient in the Mercy Hospital, Baltimore, admitted from Charles County, Maryland, was seen by the present writer, on Saturday, August 7, 1909, and diagnosed pellagra.

Chronology of Cases. The following concise summary of the 31 Maryland cases of pellagra might prove helpful and interesting. In addi-

tion to the date, I shall mention color, sex and age:

Case 1. White female, aged 57 years. Improved, November 18, 1905.

Case 2. White male, aged 35 years. Improved, May 14, 1909.

Case 3. White female, aged 52 years. Died, August 20, 1909.

Case 4. White female, aged 55 years. Died, November 26, 1909.

Case 5. White female; aged 17 years. Died, March 19, 1910.

Case 6. White female, aged 40 years. Died, April 12, 1910.

Case 7. White male, aged 61 years. Died, April 17, 1910.

Case 8. White male, aged 37 years. Died, April 28, 1910.

Case 9. White male, aged 54 years. Died, June 11, 1910.

Case 10. White male, aged 47 years. Died, July 19, 1910.

Case 11. White male, aged 77 years. Died, August 11, 1910.

Case 12. Colored female, aged 30 years. Died, September 6, 1910.

Case 13. White male, aged 10 years. Died, September 13, 1910.

Case 14. White female, aged 54 years. Died, February 9, 1911.

Case 15. White male, aged 64 years. Died, February 23, 1911.

Case 16. White female, aged 60 years. Died, March 23, 1911.

Case 17. White female, aged 64 years. Died, June 28, 1911.

Case 18. White female, aged 44 years. Died, July 5, 1911.

Case 19. Colored male, aged 65 years. Died, July 7, 1911.

Case 20. White female, aged 61 years. Died, September 13, 1911.

Case 21. White female, aged 47 years. Died, September 26, 1911.

Case 22. Colored male, aged 11 years. Recovered, November 15, 1911.

Case 23. Colored male, aged 30 years. Died, November 17, 1911.

Case 24. Colored female, aged 6 years. Died, December 3, 1911.

Case 25. White male, aged 9 years. Died, December 27, 1911.

Case 26. White male, aged 35 years. Died, April 15, 1912.

Case 27. White male, aged 70 years. Died; May 10, 1912.

Case 28. Colored female, aged 42 years. Died, May 15, 1912.

Case 29. White male, aged 48 years. Died, June 14, 1912.

Case 30. White female, aged 29 years. Died, July 16, 1912.

Case 31. White female, aged 60 years. Died, August 24, 1912.

To summarize the Maryland cases of pellagra is interesting, to say the least. There have been a total of 31 cases, with the following results, arranged in three groups:

Group *a*—Terminated fatally, 28.

Group *b*—Improved, 2.

Group *c*—Cured, 1.

The one case under Group *c* was cured by the internal administration of urotropin.

Summed up by years, the following are the revised Maryland figures on pellagra:

| | |
|-----------|--|
| 1905..... | 1 case. |
| 1906..... | no case. |
| 1907..... | no case. |
| 1908..... | no case. |
| 1909..... | 3 cases. |
| 1910..... | 9 cases. |
| 1911..... | 12 cases. |
| 1912..... | 6 cases, down to date, making a total of 31 cases. |

Distribution and Locality. In only one instance have two or more cases of pellagra occurred in one family in Maryland. It is that of Case 5 and Case 13, of the Maryland series of cases, in which a seventeen-year old girl died in March and her ten-year old brother in September.

As stated above, nine of the pellagra cases originated in the city of Baltimore and twenty-two in the smaller cities and towns and rural districts. The distribution of the twenty-two county cases is, as follows:

| | |
|--------------------------|----------|
| Anne Arundel County..... | 1 case. |
| Baltimore County..... | 6 cases. |
| Carroll County..... | 1 case. |
| Calvert County..... | 1 case. |
| Charles County..... | 2 cases. |
| Dorchester County..... | 5 cases. |
| Queen Anne County..... | 3 cases. |
| Somerset County | 3 cases. |

Other features concerning these cases will be set forth in a subsequent paper, entitled, *Clinical and Pathological Notes on Pellagra*.† Enough, however, has been said to convince the most skeptical that pellagra is more common in Maryland than is generally supposed.

Concluding Remarks.—While Maryland is fortunate enough not to possess a long series of pellagra cases, yet the fact that 31 cases of the disease have occurred within the limits of the State is sufficient grounds for a serious consideration of the malady by the State authorities. In view of the above conditions, the following conclusions may be formulated:

1. Pellagra should be made a reportable disease in Maryland. Its presence and almost uniform fatality make such a step highly advisable.

2. Pellagra prevails in Maryland where the greatest rainfall occurs and where the soil is composed of sand, clay, loam, and marl.

3. The geographical distribution of pellagra in Maryland is highly suggestive that warmth, moisture, and low altitude have an important bearing upon the etiology of the disease.

4. The telluric and climatic conditions of two of the three geographical divisions of the State of Maryland, namely, the Coastal Plain and the Piedmont Plateau, are favorable to the development of pellagra.

5. Nine of the thirty-one Maryland pellagrins developed the disease in the city of Baltimore; twenty-two developed the disease in the smaller cities and towns, in the suburbs of Baltimore, and in rural communities. In only a single instance has more than one case occurred in a family. The largest number of cases in any one community occurred in and near the city of Cambridge, Dorchester County.

6. While the pellagra problem is not alarming in Maryland, and I do not know of a single case of the disease at the present time, it certainly is deserving of unremitting attention.

7. Lastly, I believe a few sporadic cases of pellagra have existed in Maryland from the earliest times to the present. Formerly such cases were diagnosed eczema, sunburn, senile gangrene, arteriosclerosis, Raynaud's disease, leprosy, erysipelas, scurvy, purpura, etc.

To-day the pendulum has swung in the opposite direction, and cases of eczema, senile gan-

†This paper will appear in the next issue of the *Semi-Monthly*.

grene, symmetrical gangrene, leprosy, arterio-sclerosis, Raynaud's disease, sunburn, erysipelas, and the like, are diagnosed pellagra.

Note.—I am indebted to Dr. James Bosley, Health Commissioner of the City of Baltimore, for much of the data concerning the city cases of pellagra.

6 East Franklin Street.

OPERATING ROOM ECONOMY.*

By ASA BACON, Chicago, Ill.

Treasurer American Hospital Association; Superintendent Presbyterian Hospital.

In taking up the question of "economy in the operating room," I am sure you will agree with me that it is one of our difficult problems in hospital administration, and that you will sympathize with me in the undertaking toward giving information that will be beneficial.

I shall treat the subject from a purely business standpoint and not a professional one, for it is not my purpose in any way to dictate what the surgeon shall or shall not do in the operating room, for the life of the patient is in his hands, therefore, the responsibility lies with the surgeon. Possibly I may make a few suggestions or give a few facts that will interest him, for I have always found the surgeon willing and even anxious to assist in keeping down the operating room expenses, and of course, he should, for our interests are mutual.

I believe it the duty of the superintendent to co-operate with the surgical and nursing staff, so as to bring about proper team work as well as to provide suitable supplies, instruments, etc., to produce the very best results for the patient. To do this means co-operation. The superintendent must exercise great care in the purchasing of proper supplies and the providing of suitable assistants for the surgeon. This is extremely difficult in a hospital that has a large staff and especially where the service is alternating. However, your first ambition should be the acquisition of knowledge pertaining to your business, which can be best gained by keeping in close touch with your staff, by keeping accurate accounts so as to know the exact condition of your affairs and by examining carefully every detail of the work of your hospital.

I believe that managing a hospital is purely a business proposition, just as managing a hotel, department store, or any other business. The fact that most of our hospitals are partly or

wholly financed by a kind and generous public, contributing for the purpose of charity, makes the superintendent's position all the more a keen business proposition, for the money so contributed is, as it were, "trust funds" and every penny should be carefully expended.

PURCHASING OF GOODS.

This brings us up to the subject of buying, which is perhaps the most important. Modern surgery demands many items that were not thought of a few years ago; one of the largest items is rubber gloves.

Rubber Gloves.—This is the rock on which many of our hospital supply firms, as well as others, have wrecked their ships, and the result is that the hospitals have been heavy losers, owing to loading up with cheap gloves. There is no rule that I can suggest that will assist you in the purchasing of gloves, for since there are so many grades and forms and each surgeon has his peculiar touch to consider, it remains almost entirely with the judgment of the purchaser. It is a fact, however, that very few superintendents know how rubber gloves are made, and as this is such an important item of expense, and as there are so many poor gloves on the market, I shall, as a matter of information, tell you in as few words as possible how one of our leading manufacturers makes gloves.

The best gloves are made from pure Para rubber. This is the very finest brand of crude rubber known. The rubber, which is the sap of the Hevea tree, is carefully gathered and kept as free as possible from dirt.

After the sap, which is the color of milk and about the consistency of syrup, is collected in vessels, a paddle is thrust into the vessel and twisted and turned over a fire made of Brazil nuts, which gives out a thick black smoke and has the effect of thickening and coagulating the gum. After a large lump weighing from 50 to 60 pounds is made in this way, it is ready to ship in boats down the Amazon river to the sea coast, where it is loaded on vessels and shipped to England. It is then reshipped to the United States.

After it is received by the rubber manufacturer, who has to pay at the present time about \$1.15 per pound, it goes through many processes which add considerably to the price per pound of the crude material. It is first cut into pieces and put through corrugated rolls, over

*Read before the American Hospital Association, in Detroit, Mich., September 24-27, 1912.

which a stream of water is played continuously. This grinder crushes the gum and washes all the sand, wood and other foreign substances out of it, and rolls it out into thin sheets.

It must then be hung up in a hot room for from three to six weeks to dry. This drying, of course, is accompanied by considerable shrinkage. One hundred pounds placed in a drying room will shrink approximately 20 per cent. After drying, the rubber is returned to the mill-room where it is put through smooth heated rolls. This softens the gum and is called the refining process. After refining, it is again rolled out in sheets about one-fourth of an inch thick. It is then cut into small pieces and put in a revolving tank containing naphtha. The naphtha gradually dissolves the rubber until the whole is a mass about the consistency of molasses. It is then run into another tank where it stands for 24 hours to allow all the air to come out of it.

The gum is now ready for the dipping process. A rack is suspended over the tank containing the gum. The rack holds many forms molded in porcelain the shape of the hand. These porcelain forms are very expensive. The rack containing the forms is then carefully lowered into the tank for a few seconds, and, when drawn out, the gum adheres to the form. This process has to be repeated many times, with sufficient time between the dips to allow each coat to dry.

After the dipping is finished, enough of the rubber having adhered to the forms to make the glove the required thickness, the rack is wheeled into another room and the wrist band put on. It is then ready for the curing or cooking. This is the most important part of the whole process, as the finest material may be ruined by a few minutes extra time in the curing.

The racks containing the gloves are placed in a specially constructed oven in which vapor produced by sulphuric acid and other chemicals is forced in and out by means of compressed air. After the gloves are cured, the racks are removed from the oven, the gloves are stripped from the porcelain forms, dusted to prevent sticking together, glycerined and packed ready for the surgeon's use.

Surgeons' gloves are made in light, medium and heavy weights.

Only a rubber expert can tell at sight what grade of material is used. You can see how

easy it is in the manufacture to use a substitute for rubber, thus producing a cheap glove that deceives many a superintendent. The gloves may be cooked too long, thus becoming seconds; or the wrist bands may be imperfect so the gloves will tear easily when putting them on. I would suggest that you insist on boiling a sample of gloves before purchasing, unless they are guaranteed. This is the only positive proof, for, if they are made of poor material or over-cooked, they will stretch out of shape and lose their elasticity by sterilization. When the surgeon throws aside a pair of gloves, mend them for the interne and from the interne send them to the floors for dressing purposes. So far as possible, buy heavy gloves; they last much longer and are cheaper in the end.

As a matter of information and comparison, my bill last year for all rubber gloves used in the hospital was \$522.00. We cared for 2,609 surgical patients, including 244 obstetrical and had 2,702 operations. This makes 20 cents per surgical patient for gloves.

Rubber Tubing. The same carefulness should be used in the purchase of rubber tubing. It is more economical to buy the pure gum with extra heavy wall. This will stand sterilization and is especially good for drainage purposes, for it holds its elasticity and does not collapse.

Gauze, Cotton and Bandage Material. The purchasing of gauze, absorbent cotton and bandage material is not so difficult, for by carefully studying the cotton market and keeping in close touch with salesmen, you can usually tell when to buy to the best advantage. I believe it pays to purchase one grade of gauze. Find the kind that gives you satisfaction and stick to it.

A good well-bleached gauze will weigh less than a poorly bleached gauze because all vegetable oil and foreign substances are taken out and the chemicals used in bleaching removed, making the gauze more absorbent and less liable to irritate the wound of the patient. There is a difference of about 10 per cent. in the weight of the goods, between bleached and unbleached.

From my experience I find the 16-20 gauze, 20 to 21 yards to the pound, shipped in packing boxes, the most economical. By carefully buying and selling the boxes your gauze bill should not be out of proportion to your other items of expense, providing proper economy is used in

distributing.

Suture Material.—You can purchase silk worm-gut, cat-gut and surgeons' silk to better advantage in the raw state and prepare it yourself. If you purchase it prepared you should be guided by the sentiment of your staff, for if infections occur the superintendent has no recourse only to the surgeon. On the other hand, if you prepare your own suture material you have full control of the process of preparation from beginning to end and can trace trouble if it occurs.

In buying silk worm-gut I suggest the coarse or extra coarse No. 1 grade. It costs a little more, but usually the difference is made up in the saving by breakage when tying and many times saves the temper of the operator. You can tell a good grade by its clear bright color and by drawing a strand between the thumb and finger to determine how even and smooth it is:

Rough German cat-gut Nos. 0-1-2-3 is a very economical cat-gut to use; however, many surgeons prefer the smooth. Braided silk, whether white or black, is stronger and more economical than the twisted. Numbers 1 and 2 iron dyed braided black silk can be used in place of horse hair. Unused pieces can be sterilized in your autoclave for further use. All cat-gut and silk-worm-gut left on reels can be used after proper sterilization. A great saving can be made by the surgeon by using a short piece for small incisions and tying vessels instead of a long piece, thus saving possibly half of the strand instead of wasting it as is often the case.

I submit the following formulas for preparing suture material:

Iodine Method of Preparing Cat-gut. (Method of E. Cox Mann, Buffalo):

Roll cat-gut tightly on glass reels. Tie ends firmly. Drop cat-gut as wound into clean glass jars. (Mason jars will do.) Cover cat-gut with solution of iodine, 300 parts, and ether, 1,700 parts. Leave immersed for seven days in air tight jars. Then pour off iodine solution into original bottle or onto freshly wound cat-gut. Pour ether (commercial) on sutures. Keep pouring off and on until the ether solution comes away clear. Screw jar tops on tightly and cat-gut is ready for use. Cat-gut is kept dry and is not handled from the time it is first put into jars until it is removed with sterile forceps for the operator's use. The iodine solution can be used over and over again, and reels of sutures

removed from jars during operation and not used can be resterilized by keeping them in the iodine solution for four days and washing off with ether as in original treatment.

Preparation of silk worm-gut.—Wind around fingers to curl so as to occupy less space. Boil for one-half hour in covered basin; remove with sterile forceps; place in covered sterile jar and cover with 95 per cent. alcohol.

Beeswax and Carbolic Method of Preparing silk.—Wind silk on glass reels. Roll securely in muslin or other material, folding in the ends to prevent reels from falling out. Place in autoclave (20 pounds pressure) for one hour. Meanwhile liquefy one pound beeswax by putting in instrument sterilizer; strain liquid beeswax through sterile gauze into sterile Mason jar. Add one ounce and five drams of 95 per cent. carbolic acid. Place Mason jar containing beeswax and carbolic mixture in instrument boiler and boil for one hour. With sterile forceps remove sterile sutures from muslin package and place in Mason jar containing beeswax and carbolic solution. Boil again for half hour. Remove sutures from liquid solution with sterile forceps, and place in sterile jars. Keep dry, ready for use. Iron dyed braided black silk is treated as above.

ANESTHETISTS.

When possible to do so I believe it is economy to engage a professional anesthetist to serve as instructor and to administer anesthesia in complicated cases. The anesthetic bill can be greatly reduced and at least a part of the anesthetist's salary can be met by extra fees from patients who wish the services of an expert.

As nitrous oxide gas is being used by a large number of our surgeons, small hospitals having one operating room can easily install their own nitrous oxide plant, provided they have a small room, say 8 x 10 feet, adjoining the operating room, to hold a tank 5 feet in diameter and from 8 to 10 feet high, retorts, purifying bottles, etc. The amount expended for such a plant is small, and gas can be made economically.

Many of our surgeons prefer to start the anesthetic with gas and switch to ether. In using ether it is economy to buy the best and purest. It goes much farther and is better for the patient. Much can be wasted by saturating too large a surface. The anesthetist sometimes, in watching the operator, does not always confine the

ether to the cone but saturates the towel. The opening of cans before ready for use, also using only a part of a can, is another form of waste. There is a great saving in making the anesthesia as short as possible by having everything ready to start the operation as soon as the patient is anesthetized and by removing the anesthetic as soon as the operation will permit.

The anesthetic must be governed by the peculiarities of the patient, surgical procedure and character of operation. Acute cases and alcoholics take more while others less, but with ordinary cases an eight-ounce can properly administered will anesthetize a patient for one and one-half hours. It is well to have sufficient small cans on hand for short operations.

GOWNS.

Gowns can be made cheaply in the sewing room, at the same time using a pattern to suit the surgeon. The cost is from 75c. to 90c. each, according to material used.

CARE OF INSTRUMENTS.

It prolongs the life of instruments to keep them in good repair and replate as often as necessary. Your carpenter or handy man can sharpen operating scissors by using corundum wheels, attached to a dental lathe run by an ordinary electric fan motor. Surgeon's knives can be sharpened by the same handy man or the hospital barber.

SOME SMALL LEAKS AND HOW TO PREVENT THEM.

A large pad of gauze is often used to wash a patient when a sponge or two is sufficient. The worn out towels can be made into pads to wash patients.

Large thick pads put on clean surface absorb more alcohol but some operators consider a large pad necessary.

Save the gauze. You can greatly reduce your bill by washing, sterilizing and using it again.

Operating pads can be used several times by sterilizing.

Use cheap cotton or gauze for pads instead of the high priced absorbent.

Use cheap cotton for chinking windows and doors when fumigating. Save the cotton and use it again.

Laundry bags and cans of waste should be carefully watched. You will find an occasional instrument and pieces of linen in them.

Be careful of open windows. Sometimes the window sill is a handy place to lay an instru-

ment or a utensil. Occasionally they drop out and are lost.

Replace glass top tables as fast as they break with porcelain enameled iron or nickel.

Use bottle dispensers for alcohol and liquid soap instead of pouring on the hands in the old way.

Bags, used for sterilizing utensils, when worn out make good dust cloths, iron holders in the laundry, and they can also be used for wiping machinery in the engine room.

Urethral catheters are ruined by boiling. Save them by sterilizing in alcohol.

Provide suitable lockers for the surgeons' clothing and valuables. There are dishonest men who make it a business to rifle the clothing while the surgeons are busy operating. Mend the gloves. They can be used by the internes and nurses in dressing patients and for other purposes.

Liquid soap and alcohol is all that is used by most of our surgeons for the sterilization of patients. Why use more?

It is economy to have uniformity of solutions, uniformity of sutures, uniformity of needles, uniformity of instruments, uniformity of everything as far as possible.

I submit the following to be used occasionally in the operating room as a means of checking up the work:

| Date Operation Supplies | Operator | |
|-------------------------------|----------|------|
| | Opened | Used |
| Ether | | |
| Chloroform | | |
| Gas | | |
| Alcohol | | |
| Cat-gut | | |
| Silk | | |
| Silk-worm-gut | | |
| Gloves | | |
| Gowns, Doctors' | | |
| Gowns, Nurses' | | |
| Sheets | | |
| Towels | | |
| Abdominal Pads | | |
| Laparotomy Pads | | |
| Cotton | | |
| Sponges | | |
| Dressings | | |
| Adhesive plaster | | |
| Green soap | | |
| Solutions | | |

Proceedings of Societies, Etc.

COLLEGE OF PHYSICIANS, PHILADELPHIA.

Presentation of a Portrait of Dr. Wharton Sinkler.

At a regular meeting of the College of Physicians, in Philadelphia, on Wednesday, November 6, 1912, Dr. J. C. Wilson made the following brief remarks:

Mr. President and Fellows of the College:

The art of portraiture has many uses, the most important of which has been to transmit to succeeding generations the form and features of those who have been prominent in the affairs that make history. These walls are adorned with the lineaments of those who have taken an active part in making the history of this institution and who in so doing have contributed to the history of medicine in Philadelphia and to the history of the city itself—no small honor, since from the earliest days until this period Philadelphia has occupied the foremost place in the medical life of the nation.

Portraits vary greatly in excellence, and especially in their power to arouse the attention and convey the impression of realness, but when to high technical skill the painter adds closeness of observation, insight into character and sincerity of purpose the result is much more than a mere bodily likeness; it becomes a life-like and enduring presence. All these gifts the talented artist has brought to bear upon the canvas which I have the honor to present to you to-night, and the end crowns her work.

I am here not to rehearse the facts of Dr. Sinkler's memorable career, nor to tell of his skill as a physician, his untiring energy, his enthusiasm in the medical profession as a great and beneficent guild, his devotion to public charities, his power to make and hold friendships, his lofty character. I am here to place in the possession of the College this fine and truthful portrait, the gift of his family as a lasting memento of his useful and noble life. To us, his fellows, his devoted professional and personal friends, no portrait is needed to recall him. Our memory of him is so vivid and our feeling for him so warm that, were it not for the mournful special meeting of March 16, 1910, it would be easy in looking over those seated in this hall to think of him as one who is prevented from being here by

some duty of this life. But to those who come after us this picture will serve as a lighted candle, to use the phrase of Carlyle, by which our high estimate of him can be clearly interpreted and understood.

In the name of his family, and acting as their spokesman, I present this portrait to you.

Analyses, Selections, Etc.

Hypotension—Its Clinical Significance.

Experience, says F. A. Faught, Philadelphia, teaches that 105 mm. may be taken as the low limit of the normal blood-pressure in man, and 95 mm. as the low limit in women. These will be modified slightly by the age, occupation and muscular development of the individual. It is usually advisable to employ the blood-pressure test as a routine in all cases, in order to develop the ability to interpret the significance of each individual finding.

The several varieties of hypotension recognized clinically are *Terminal*, which means an abnormal lowering of tension in the circulation indicating the approaching end.

The factors governing the rapidity, and its relation to the actual cause of death are but little known. According to Janeway, pressure as low as 60 mm. (5 cm. cuff) may persist for several days before death. In such cases the hypotension is of some value as a sign of impending dissolution; but, as a rule, the terminal fall in pressure is usually a matter of minutes or hours.

Essential Hypotension.—A constitutionally low pressure is present in occasional cases which show no definite signs of disease; and no discoverable cause can be assigned for the condition, though sometimes it may later develop that the state was really a very early sign of tuberculous infection. Individuals so affected are rarely equal to any particular effort, either mental or physical.

Primary or True Hypotension is distinguished from the foregoing by the discovery of some assignable cause other than the pre-existence of some condition causing hypertension. Bishop defines it as being that condition in which the pressure-reducing mechanism has failed when there has been no previous overdemand for pressure.

Relative Hypotension is that condition in which the actual pressure, while still above the

calculated normal, has fallen from a former pathologic high level to such a degree that symptoms due to this fall have developed. A fairly common example is the frequent occurrence of edema, or other signs of circulatory failure, following injudicious attempts to reduce a high pressure.

Edgecombe groups as follows the types of disorders presenting low pressure:

1. Subjects with poor circulation, with cold hands and feet and liable to chilblains, and in whom it is difficult to effect any enduring rise in the general level of the blood-pressure.

2. Neurasthenics, having as their prominent characteristic profound fatigue, either somatic or psychic, or both. In these it is difficult to say whether the low pressure is the cause or effect of the extreme fatigue. A rise is an almost invariable accompaniment of improvement.

3. Tobacco usually raises the blood-pressure with the apparent anomaly that the heavy smoker frequently has a subnormal pressure.

4. In cases of dilated heart, with or without valvular disease, the pressure will sometimes be found low; and a rise is one of the indications of progress towards recovery.

5. In many of the cases of so-called gouty or rheumatic manifestations of lumbago, sciatica or neuritis there is blood-pressure somewhat below normal. Frequently there is a subnormal acidity of urine and an almost constant liability to the copious deposition of phosphates, which leads to, or is accompanied by, a state of nervous depression.

6. Phosphaturia, in whatever condition it may occur, is generally accompanied by a low blood-pressure.

7. Young subjects with "rheumatoid arthritis" frequently have a blood-pressure below normal, rising as the condition improves.

Faught gives the following resume of diseases and conditions which he has made as reliable as possible:

Heart Diseases.—Compensated valvular disease *per se* has no effect upon the blood-pressure except aortic regurgitation, or when the cardio-valvular defect is accompanied by myocardial, arterial or kidney degeneration. The effect of these is to increase blood-pressure, except in the short period accompanying the terminal stage, which lasts, as a rule, only a few hours or less.

Mitral Stenosis—In extreme cases the blood-

pressure is lowered simply because the heart only pumps a fraction of the normal amount of blood.

In *circulatory failure from heart disease*, either muscular or valvular, the tendency of pressure is downward; but, according to Bishop, the failure does not become a matter of special anxiety during the acute stage (with patient at rest). The low pressure usually shows itself when the patient resumes his occupation. Bishop also points out that low arterial tension must be regarded as pathologic only when it is so little above venous pressure, as shown by venous congestion, large liver, etc., that the tissues and organs are not supplied with blood. This emphasizes that the actual pressure level does not always measure the degree of pathogenicity of the case, as each has its own law and must be studied and treated according to the conditions met.

Alterations in heart-rate do not, as a rule, influence blood-pressure, though the latter has a marked influence on pulse-rate. Two conditions, however, the cause and significance of which are as yet obscure, have been found to have an influence on blood-pressure:

1. *Paroxysmal Tachycardia.*—The pulse-rate may be from 150 to 300; the heart-sounds good, and the pulse so small that at times it cannot be counted. The blood-pressure is usually low; venous pressure high. In the intervals, the circulation is apparently normal; and

2. *Bradycardia.*—When extreme blood-pressure is always lowered, and patients so affected cannot exert themselves without dyspnea, and even when at rest may suffer from attacks of syncope.

It has been found that in the last stages of arteriosclerosis widespread dilatation of the splanchnic area, together with failure of the heart to the demands made upon it, results in a gradually falling blood-pressure upon which therapeutic measures have little or no response (terminal hypotension).

Shock and collapse are closely allied to the foregoing. In both there is a sudden and dangerous fall in blood-pressure. Collapse is due to paralysis from overwhelming of the vasomotor system by toxins. Shock appears to result from failure of vasomotor tone, the result of reflex stimulation through the sympathetic system.

Cardiac Asthma.—During the height of the at-

tack the pressure is usually below normal, regaining speedily its former level as the attack passes off.

Hemorrhage produces a great reduction in pressure, becoming dangerous when the hemorrhage is sudden and profuse, or in those suffering at the same time from shock or collapse; or when the vasomotor tone has, by some means, as acute infections, been already reduced.

Altitude.—Most authorities seem to agree that marked elevations almost uniformly cause a reduction in blood-pressure. The fall is greatest during early residence, the average being from 1 to 22 mm. Psychic influences may modify the reading. The danger to those having a low pressure, especially if accompanied by a weakened physical condition, is probably due to a further reduction of an already existing hypotension.

Paresis.—Hypotension is the rule unless kidney complications exist.—(*Interstate Medical Journal*, November, 1912..

(*To be concluded.*)

A Note on the Treatment of the Gastric Neuroses.

Reynold Webb Wilcox, in a paper on this subject, read before the American Therapeutic Society, gives the classification of the gastric neuroses as 1. Secretory: Hyperchlorhydria (including the gastroxynsis of Rossbach, the gastro-succorrhea of Reichman and the gastromyxorrhea of Dauber) and hypochlorhydria (including achylia gastrica). 2. Motor: Cardiospasm; pylorospasm; gastric hyperperistalsis; merycism; nervous eructation, and cyclic vomiting. 3. Sensory: gastric hyperesthesia; gastralgia; bulimia (including akoria and the gastralgokenosis of Boas) and anorexia nervosa. Perhaps from the therapeutic standpoint, the former grouping of all of these as "nervous dyspepsia" was not so illogical. The methods of examination and refinement in use today have aided in a differentiation of disordered function, but with too much stress laid upon a symptom-diagnosis, or, at least, upon one dominant manifestation, for the permanent good of the patient.

However, far from decrying accuracy in diagnosis, it is to be encouraged; but in the careful cultivation of the narrower field the greater general condition is not to be forgotten. From the point of view of the therapist, even the substitution of the term "gastric neurosis" for nervous

dyspepsia has not been altogether fortunate, for it has favored the conception of a gastric neurosis as a morbid entity.

The chemistry of gastric secretion and the physics of stomach motility are not elucidated in textbooks, but should be predicated upon what the organism may do when its pathology is physiology gone wrong and a neurotic subject is doing his utmost in the way of vagaries. The lesson to be learned is that repeated examinations should be made so that the dominant or usual condition shall be determined; and a correct diagnosis established, which is important chiefly so far as it shall define our therapeutic efforts. For instance, what has been assumed to be an achylia gastrica, may prove to be merely gastric hyperperistalsis.

When sufficient observation has been directed to the patient so that the diagnosis is reasonably correct, the indications are generally well met by what is found in the text-books. Reflection and a more careful study of the chemistry of gastric secretion would lead to the substitution of magnesium oxide for what seems to be the extensive and improper use of sodium bicarbonate in the treatment of hyperchlorhydria, if one desires not only not to aggravate later the condition, but to benefit it permanently.

Especial attention is to be directed to the diet which should be selected not so much in accordance with the chemical reaction of the stomach contents as with the condition of the patient plus that of the stomach processes. And it should be remembered that quantitative as well as qualitative regulation is important, and thus distinct prohibition may be diminished. Exercise, and above all, occupation, electricity, baths and massage, so far as they may influence general conditions, should be more carefully considered and more intelligently and frequently employed.

Many remedies directed to the nervous system are useful, but discretion must be exercised that they shall not have any deleterious local effect. The use of sedatives and narcotics is particularly to be deprecated. Even more so is the habitual employment of "pick-me-ups," bitters and cocktails, especially the abominations in vogue in fashionable restaurants.

In addition to regulation of habits of life and the employment of whatever physical agencies already mentioned, that may be adapted to the particular patient, much benefit often comes

from ten drops of tincture of *nux vomica*, six grains of resorcinol and a drachm of peppermint water diluted in two ounces of water after meals.

The author concludes that his paper should not be construed as showing any lack of appreciation of what gastrologists have given to scientific medicine, nor as ignoring the brilliant surgical work which has been epoch-marking; but it is a plea, not for the less consideration of morbid gastric processes, but for better and more attention to be paid to the individual who unfortunately possesses an unruly stomach.

Fibrillation of the Auricle.

Louis Faugères Bishop, New York, states that our knowledge of fibrillation of the auricle has come to us within the last two years through the laboratory. In it a large number of irregular contractions of the muscle fibers of the auricle occur, but the beat of the ventricle does not increase in proportion. The auricle alone may be involved; this is a fairly frequent clinical phenomenon. Digitalis slows the ventricle and steadies it, and is of great efficiency in this type of heart weakness. A fibrillating auricle causes great irregularity in the beat of the ventricle. Polygraphic tracings are very characteristic. There is no auricular wave at all; digitalis has no effect on the auricle except to render the fibrillation finer. Fibrillation exists in more than one-half of the severe heart cases seen, and causes absolute irregularity of the heart. It practically amounts to a trembling palsy of the heart. The healthy part of the heart is willing and able to contract but very slowly. The paralyzed part lashes the healthy part to more frequent systoles. If one could cut the bundle of His, the heart would act regularly but very slowly. (*Medical Record*, May 6, 1911).

study by physicians generally a matter of much importance, especially so since it has been shown that many otherwise obscure cases were explainable by such a diagnosis. Dr. Niles, in the volume under notice, presents a very fair account of this seriously distressing malady. While there seems just now to be but little that is new for him to offer either as to cause or cure, the data he has collected in this connection, together with his views as to the management and treatment of pellagra patients—with whom he has had much experience—make the book worthy of every consideration.

Progressive Medicine. Edited by HOBART AMORY HARE, M. D., Professor of Therapeutics and Materia Medica, Jefferson Medical College. Assisted by LEIGHTON F. APPLEMAN, M. D., Instructor in Therapeutics, Jefferson Medical College. Vol. XIV, No. 3, 1912. 353 pages 8 vo. Lea & Febiger, Philadelphia and New York. Paper, \$6 per annum.

This number of *Progressive Medicine* contains a discussion of the latest advances and discoveries in diseases of the thorax and its viscera, including the heart, lungs, and blood vessels, dermatology and syphilis, obstetrics, and diseases of the nervous system. Being under the editorial supervision of recognized authorities, the subject matter, which relates possibly in greater part to etiology, diagnosis, and treatment, has received the consideration that is so necessary to make a work of this character up-to-date and at the same time reliable. We have referred so frequently to the value of these volumes that it seems scarcely necessary to do more than to note the appearance of this recent issue.

The Surgical Clinics of John B. Murphy, M. D., at Mercy Hospital, Chicago. Vol. I, Nos. 3, 4 and 5. 8 vo. of 174, 154 and 156 pages, respectively. Illustrated. Philadelphia and London: W. B. Saunders Company. 1912. Price per year, paper, \$8; cloth, \$12.

Book Notices.

Pellagra. By GEORGE M. NILES, M. D., Professor of Gastro-Enterology and Therapeutics in the Atlanta School of Medicine, Atlanta, Georgia. 8 vo. 253 pages. Illustrated. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, \$3.00 net.

Pellagra has come to be of sufficiently common occurrence in this country to make its

There is something refreshing and interesting as well as of practical instruction felt in reading the Surgical Clinics of Dr. Murphy, which are published bi-monthly. These "Clinics" represent stenographic reports of talks before his classes as patients with varied conditions are brought before him, and history, examination, treatment, etc., proceed before the auditors. Next to the actual seeing and hearing of this eminent surgeon in such discourses, the cases

presented are impressed, to our minds, much more vividly than if they were treated in the usual text-book fashion, existing conditions being dealt with, not theories.

Text-Book of Pathology. By J. GEORGE ADAMI, M. A., M. D., LL. D., F. R. S., Professor of Pathology in McGill University, Montreal, and JOHN McCRAE, M. D., M. R. C. P., (London), Lecturer in Pathology and Clinical Medicine in McGill University, formerly Professor of Pathology in the University of Vermont. 759 pages. Cloth, \$5.00, net. Lea & Febiger, Philadelphia and New York, 1912.

This volume serves well not only as a text-book for students, for whom it is especially intended, but likewise for practitioners. Those subjects which have seemed to require full discussion have been dwelt upon *in extenso*, while those of lesser importance—although presented liberally as to leading facts of present-day knowledge concerning morbid states—have been given reduced space.

The index, which covers about fifty pages, furnishes quite a useful aid for reference. There are 304 engravings in the text, besides the insertion of 11 colored plates.

The Practice of Medicine. By HUGHES DAYTON, M. D., formerly of Cornell University Medical School, New York. New (2d) edition, thoroughly revised. 12 mo. 326 pages. Cloth, \$1.00 net. The Medical Epitome Series. 1912. Lea & Febiger, Publishers, Philadelphia and New York.

This little work, which is quite handy, gives a brief outline of diseases usually considered under the heading of practice of medicine, except that diseases of the pharynx, larynx and tonsils appear in a companion volume on the nose and throat. The revision of this second edition has been thorough, though the principal changes have been necessitated by advances in infectious, cardiac and constitutional diseases.

Editorial.

The Teaching of Materia Medica.

Materia medica is to the majority of medical students what English grammar is to the average school girl. Bones and drugs are regarded as very dry subjects, whatever be the ability or magnetism of those who lecture on them. In-

deed, it is almost as difficult to secure a teacher of materia medica alone, as it is to find a student who will pay the proper attention to this essential branch of medicine. Can the course be made more interesting or attractive?

Laboratory instruction is properly considered the best means of elucidating and fixing theoretical knowledge. The demonstration of truth brings it clearly and tangibly to the student's intellect, and impresses it upon his memory, and we are of the opinion that even materia medica can be taught in such a manner as to become a pleasure instead of proving a burden.

It goes without saying, that as far as possible and practicable, the various medicinal preparations should be seen, smelt, and perhaps tasted by the learner; who, with such an experience, would not only understand his agents, but would sympathize with the patients who have to swallow them. More than this, the original source of the drug could often be exhibited. If an enterprising florist could be induced to cultivate such plants as the poppy, digitalis, gelsemium, and many others, and advertise to the public that he has them displayed in his shop or hot-house, he might attract customers as well as advance scientific knowledge. Classes in botany could study the plants and learn something useful. The medical teacher could borrow them for his lecture and arrange them in a captivating way upon his desk. The cost and trouble would be insignificant compared with the benefit conferred. The student would be entertained while he is being instructed. The country practitioner would be enabled, on a pinch, to draw upon the resources immediately around him. Perhaps the school children could be taught how to avoid eating belladonna berries or recommending them to their friends.

We shall never forget a delightful lesson during a day's outing on one of the most beautiful rivers in this State. The fish had ceased to bite. The boatman, a shrewd child of the woods and a keen observer, remarked: "Wouldn't you like to see some Wahoo?" Not knowing the bush as it grows in nature, we readily assented to a little trip and followed our teacher up the mountain side. He dug up the root, exclaiming that he had, in former years, paid doctors several hundred dollars for treating his torpid liver unsuccessfully; that a friend had advised him to drink a tea made from the bark of the

root; that he had done so; and that he and the doctors had at once parted company. Other plants were found and studied, and we were well rewarded for not possessing a good string of bass. If we lived in the country and were cut off from the drug houses, we would know how to touch up a refractory liver or secure remedies for some other ailments.

The foregoing suggestions are thrown out for what they are worth; and while impossibilities are not expected of professors, it might not be unprofitable to make a test of the method which has been outlined.

WM. S. GORDON.

Southern Medical Association.

Several hundred physicians, representing fourteen States, were in attendance at the sixth annual meeting of the Association, in Jacksonville, Fla., November 12-14. Many subjects of paramount interest to physicians were discussed, and a resolution was passed asking the support of President-Elect Wilson in favoring the bill now before Congress for the establishment of a National Department of Health. Other measures of importance receiving the attention of the doctors were relative to the creation of a commission for the investigation of malaria with a view to stamping out the disease, uniform laws governing railroad sanitation, the education of the people in matters of hygiene and sanitation, and the iniquitous practice of some physicians of receiving financial remuneration for referring their patients to certain specialists or surgeons. The Association adopted a resolution providing an appropriation each year for the presentation of a medal to a member for meritorious and original research work. The recipient of the medal this year is Dr. C. C. Bass, New Orleans, for his investigations and work in connection with malaria.

The next meeting will be held at Lexington, Ky., and the following officers were elected: President, Dr. Frank A. Jones, Memphis, Tenn.; vice-presidents, Drs. Stuart McGuire, Richmond, Va., and J. D. Love, Jacksonville, Fla., and secretary-treasurer, Dr. Seale Harris, Mobile, Ala., who was re-elected.

Prevalency of Trachoma.

Recent investigations made in the mountain region of Kentucky, under the supervision of the

Public Health service, disclose the fact that trachoma must be much more prevalent in the United States than has been supposed. Out of approximately 4,000 people examined in the locality named, twelve and one-half per cent. were found to be suffering from the disease. Although the causal organism has not been discovered, it is believed this large percentage of cases is due to the crowded manner of living in these mountain cabins, and to the use of a "family towel." With the discovery of the prevalence of trachoma, undoubtedly, steps will be taken by health authorities for its prevention and treatment.

In connection with the above, we quote from an article by Dr. W. Cheatham, of Louisville: "In the entire United States, there are 64,000 registered blind people, and it is a modest estimate that half of these are needlessly blind." Statistics go to show that a large percentage of this number are thus afflicted as a result of trachoma.

The Seaboard Medical Association of Virginia and North Carolina

Will meet this year in Newbern, N. C., Dr. N. M. Gibbs, of that city, presiding. Dr. Clarence Porter Jones, of Newport News, Va., is secretary of the Association. The date selected for the meeting is December 3-5, and it is needless to say the usual interesting and pleasant meeting will be enjoyed by those fortunate enough to be able to attend.

Augusta County Medical Association.

At the meeting of the Association in Staunton, November 6, the new president, Dr. F. M. Hanger, made his inaugural address, and the new secretary, Dr. Kenneth Bradford, also of Staunton, was at his post of duty. Clinics were held prior to the meeting. Two new members were elected, and several interesting papers were read and discussed. In the evening the annual supper was enjoyed by the large number of doctors in attendance.

A Home Being Built in Virginia for Feeble-minded Women.

The Home for Feeble-minded Women, for which the last General Assembly of Virginia

made an appropriation, is now in process of construction. As a portion of the money is not available until after March 1, 1913, however, the work is progressing slowly. After completion, it will be impossible to open the building until the General Assembly again meets and appropriates an additional sum for the maintenance of the institution.

Norfolk (Va.) Anti-Tuberculosis League.

Dr. Charles R. Grandy, secretary of the League, at its seventh annual meeting early in November, called especial attention to the decrease of deaths from tuberculosis among the white population of Norfolk, and to the great increase among the colored people. Of the 217 deaths from this disease in Norfolk during the past year 60 were white and 157 colored patients.

The Criminal Insane Building,

Located at Marion, Va., and to be run in connection with the Southwestern State Hospital, is nearing completion, and will be ready for the reception of patients within the next few weeks. This is a need that has been advocated for many years by the superintendents of our various State hospitals, and others interested in this class of afflicted people.

Tri-State Medical Association of the Carolinas and Virginia.

Interest is beginning to awaken in the coming meeting of this Association, which will hold its annual meeting in Norfolk, Va., February 19-20, 1913, under the presidency of Dr. A. E. Baker, of Charleston, S. C., and chairmen of the various sections are beginning to solicit papers. Special information may be obtained of the secretary, Dr. Rolfe E. Hughes, of Laurens, S. C., or other officers.

The Association of Military Surgeons of the United States,

At their annual meeting in Baltimore, early in October, selected Denver, Colorado, for the next place of meeting, and elected the following as officers for that meeting: President, Surgeon Wm. C. Braisted, U. S. Navy; Vice-Presidents, Brigadier Gen. Charles Adams, Nat.

Guard of Ill., Lt. Col. J. R. Kean, U. S. Army, Surg. Gen. Rupert Blue, U. S. Public Health Service; Secretary and Editor, Maj. Sam'l. C. Stanton, Nat. Guard of Ill., and Treasurer, Maj. Herbert A. Arnold, Nat. Guard of Pa.

The Association voted to present the retiring secretary and editor, Maj. Charles Lynch, with a handsome silver dish in appreciation of his services as secretary in 1909-1912.

Surgeon Hugh S. Cumming,

Of the U. S. Public Health Service, stationed at Cape Charles Quarantine Station, Va., has been directed to visit the Hampton Normal Institute, Hampton, Va., to make an examination as to the prevalence of tuberculosis, trachoma, and other contagious and infectious diseases among the Indians domiciled there.

Dr. Joseph M. Burke,

Of Petersburg, Va., chief surgeon of the Seaboard Air Line Railway, was presented with a handsome silver loving cup by the Association of Surgeons of that road at their recent meeting in Tampa, Fla., as a testimonial of the high esteem in which he is held by his co-workers.

Dr. Charles R. Robins,

Richmond, Va., was elected to fill a vacancy on the City School Board at a meeting of the City Council early in November.

Dr. Ira J. Haynes,

So generally and pleasantly known to Virginia doctors as a traveling representative of W. B. Saunders Co., has bought a handsome farm in Goochland County, Va., near Sabot, and will practice his profession in that section.

Dr. Sidney L. Scott,

Of Fredericksburg, Va., has been elected captain of Company L, First Regiment Infantry, Washington Guards, to succeed the late Captain Larkin. Dr. Scott is well fitted to fill the position, having had several years service in the United States Navy.

Army Medical Corps Examinations.

The Surgeon-General of the Army announces preliminary examinations for the appointment of first lieutenants in the Army Medical Corps,

to be held January 20, 1913. There are at present thirty-five vacancies in the Medical Corps of the Army.

Full information concerning these examinations can be procured upon application to the "Surgeon-General, U. S. Army, Washington, D. C." Essential requirements to securing an invitation are that applicant shall be a citizen of the United States, between 22 and 30 years of age, of good moral character and habits, a graduate of a medical school legally authorized to confer the degree of Doctor of Medicine, and shall have had at least one year's hospital training as interne after graduation. Examinations will be held simultaneously throughout the country at points where boards can be convened, due consideration being given to localities from which applications are received, in order to lessen traveling expenses of applicants as much as possible.

Applications must be completed and in possession of the Adjutant-General at least three weeks before the date of examination.

Westbrook Sanatorium Enlarged.

The above sanatorium, for the treatment of nervous and mental diseases, located just outside of Richmond, will, on December 1st, open a new building which will be used exclusively for men. The present building will then be reserved for women.

Poliomyelitis in Buffalo at an End.

No case of poliomyelitis having been reported in Buffalo, N. Y., for the week ending November 2d, it would appear that the epidemic there is at an end, or at least under control. Of the 288 cases of this disease investigated in Buffalo during the past summer, 34 terminated fatally.

Obituary Record.

Dr. John William Mallet,

One of the most distinguished chemists in the United States, died at his home, University, Va., November 7, after a short illness, at the ripe age of 80 years. Born in Dublin, Ireland, October 10, 1832, he was educated at the University of Dublin, from which he received his degree of A. B., and the University of Gottingen, from which he received the degree of Ph. D.

He came to this country in 1853, and accepted the position of professor of chemistry at the University of Alabama in 1855. During the

Civil War the Confederate Government placed him in the artillery service to supervise the manufacture of ammunition, and owing to his distinguished services in this position, he was given the rank of lieutenant-colonel. After the war Dr. Mallet resumed his work as professor of chemistry, this time at the University of Louisiana, now known as Tulane University. There he also took up the study of medicine, receiving his doctor of medicine degree in 1868. In this year he came to the University of Virginia as professor of chemistry, which position he held until 1883, when he accepted the chairmanship of the University of Texas. After a short service there and at the Jefferson Medical College, of Philadelphia, he returned to the University of Virginia in 1885 to be head of the Department of Chemistry. This position he held until several years ago, when he was retired on the Carnegie Foundation Fund. He was a member of the most representative scientific organizations in this country and abroad, and had enjoyed some of the highest honors which the people in his adopted country could bestow upon him. Though not actively engaged in practice, he was always closely identified with all medical interests in Virginia.

Dr. Mallet was twice married, and is survived by his second wife and two children.

Dr. Randolph L. Collins

Died at Johns Hopkins Hospital, November 3, of peritonitis following a serious operation. He was born in Carroll County, Va., in 1887, and received his medical education at the Medical College of Virginia, from which he graduated in 1910, and became a member of the Medical Society of Virginia that same year. He had recently been located in Northumberland County, but had expected to shortly move to Pulaski. The interment was made in the cemetery on the old home place in Southwest Virginia. His widow and a large family connection survive him.

Dr. Thomas Stanhope Henry,

A descendant of Patrick Henry, died at the old family home in Charlotte County, November 11, after a long illness, aged 80 years. Three children survive him. He was a graduate of the Medical College of Virginia in the class of 1864. In recent years he had lived at Brookneal, Va., but had not been engaged in active practice for some years.

THE Virginia Medical Semi-Monthly.

(FORMERLY VIRGINIA MEDICAL MONTHLY.)

Vol. 17, No. 17.
Whole No. 401.

RICHMOND, VA., DECEMBER 13, 1912.

10 Cents a Copy.
\$2.00 a Year.

Original Communications.

CLINICAL AND PATHOLOGICAL NOTES ON PELLAGRA.*

By C. W. G. ROHRER, M. D., Baltimore, Md.
Maryland State Department of Health.

Introduction.—The clinical symptoms of pellagra, as observed in the Maryland cases, are numerous and varied. The best I can do is to attempt to classify them in such a manner as to aid in future recognition of the disease, and in its ultimate suppression. While pellagra is not a reportable disease in Maryland, its distressing symptoms and almost uniform fatality have rendered it a terror to the citizens of certain sections of the State. For this reason I believe every case has been brought to the notice of the proper health officials.

In regard to the pathology of the disease, I must admit that but few autopsies have been performed upon pellagrins in Maryland. The discordant results in such as have been performed make a pathological report unsatisfactory and well-nigh impossible. However, I have incorporated in the present paper a summary of these findings, which I shall now submit to this body for whatever they may be worth.

Number of Pellagrins.—As mentioned in my paper† of yesterday, entitled, "Pellagra in Maryland," thirty-one cases of the disease have occurred in Maryland down to the present time. Nine who acquired the disease resided within the corporate limits of Baltimore, the metropolis of the State, and twenty-two who acquired it resided in the smaller cities, towns, or rural communities.

Several of the Maryland pellagrins were children, but a majority of them were adults

*Read before the second triennial meeting of the National Association for the Study of Pellagra, held at Columbia, S. C., October 3-4, 1912.

†This paper appeared in the preceding issue of the Semi-Monthly.

who had passed the meridian of life. White persons and colored persons, males and females, old and young, are affected indiscriminately.

There is only one feature that is constant regarding the Maryland cases of pellagra. It is this: All thirty-one cases of pellagra in Maryland have occurred in the two geographical divisions of the State known as the Coastal Plain and the Piedmont Plateau. Thirty of the cases originated in the former region and only one in the latter.

Color and Sex.—The color and sex of the 31 Maryland pellagrins may be stated briefly as follows:

TABLE No. 1.
Color and Sex of Maryland Pellagrins.

| | White | Colored | Male | Female |
|--------------|-------|---------|------|--------|
| No. of Cases | 25 | 6 | 15 | 16 |

In regard to color, it can readily be seen that white patients largely predominate, there being four times as many white pellagrins in Maryland as colored ones. However, when the percentage of white pellagrins in proportion to the total white population is calculated, and the percentage of colored pellagrins in reference to the total colored population is determined, the disparity is not so striking. For example: The total population of the State of Maryland, census of 1910, is 1,295,346, of which number 1,062,644 are white persons, 232,249 colored persons, 376 Chinese, 22 Japanese, and 55 Indians. As yet, no cases of pellagra have occurred in any of the latter three nationalities. Hence, we can exclude these persons, and on getting down to figures we find the proportion of pellagrins among the white population of Maryland is 2.35 per 100,000, while among the colored population the proportion is only slightly higher, namely, 2.58 per 100,000.

Age of Maryland Pellagrins.—These patients

present a variety of ages, ranging from 6 to 77 years. A majority, however, were in the prime of life. The appended table will set this matter forth in a clearer light.

TABLE No. 2.

Age of Maryland Pellagrins.

| NUMBER OF CASES | | | | | | | | | | | | | | | | |
|-----------------------|--------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | 1 to 5 Years | 5 to 10 Years | 10 to 15 Years | 15 to 20 Years | 20 to 25 Years | 25 to 30 Years | 30 to 35 Years | 35 to 40 Years | 40 to 45 Years | 45 to 50 Years | 50 to 55 Years | 55 to 60 Years | 60 to 65 Years | 65 to 70 Years | 70 to 75 Years | 75 to 80 Years |
| TOTAL... | 0 | 2 | 2 | 1 | 0 | 1 | 2 | 1 | 3 | 3 | 3 | 2 | 6 | 1 | 1 | 0 |
| | | | | | | | | | | | | | | | | 31 |

According to the above table, the most susceptible age-period in Maryland is from the 60th to the 65th year. The next most susceptible period ranges from the 35th to the 55th year. In fact, 20 of the 31 Maryland cases occurred between the ages of 35 and 65 years. Only 5 of the patients were under age.

Duration of Illness.—Pellagra may be acute or chronic, a majority of the Maryland cases being of the latter type. In some of the Maryland cases the duration of illness is given as "indefinite," while in others no information at all is available on this topic. The briefest period stated is six weeks, the longest three years. The subjoined summary will elucidate this part of our subject.

TABLE No. 3.

Duration of Illness.

| NUMBER OF CASES | | | | | | | | | | |
|-----------------------|---------|---------|----------|----------|----------|----------|-----------|--------|----------|---------|
| | 6 Weeks | 8 Weeks | 3 Months | 4 Months | 5 Months | 8 Months | 10 Months | 1 Year | 1½ Years | 2 Years |
| TOTAL... | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 6 |
| | | | | | | | | | | |

Judging from the above figures pellagra is generally a chronic disease in Maryland, a period of two years being its average duration. In such cases the disease ordinarily abates during the summer season, to flare up again in the spring or fall, usually in the spring.

Clinical History.—It would be impossible for me, in the space of time at my disposal, to give complete clinical histories of all of the Maryland cases of pellagra. I shall, therefore, give a summary of several of them which appear most typical of the disease.

Case 3, Maryland Series.—Patient is a white female, unmarried, aged 52 years, a life-long

resident of Charles County, Maryland. She did housework and also assisted with the work on the farm. She has four sisters and six brothers, all living. Her mother is also living and in good health, at the age of 78 years. Her father died of typhoid fever when he was 60 years old. One sister has muscular tremor, which resulted, so she stated, from an attack of Hodgkin's disease seven years previously. All of the members of the family go bare-footed in the summer season.

Patient had the usual diseases of childhood, but no serious illness prior to the present trouble. This is her third attack, having had her first attack two years ago and her second one a year ago, beginning in April in each instance. Gastric disturbances harassed the patient for three or four years before the skin lesions appeared. She drank hot water for her "dyspepsia," and became much reduced in weight by a troublesome diarrhoea. Then the skin lesions, spots of erythema characterized by a fiery redness, appeared, first on the wrists, then on the forehead, and a few days later on the dorsal surfaces of the feet. Her appetite was poor, and she seemed to relish nothing but ice-cream. Her temperature ranged from 99 to 100 degrees F. up until the last week of her life, when it became subnormal. The usual ratio between pulse and temperature was maintained, the pulse becoming less frequent when the temperature became subnormal. She had severe, ulcerative stomatitis. Her mental condition, which was bad when she entered the hospital, grew progressively worse.

Case 7, Maryland Series.—Patient is a white male, a carpenter by occupation, addicted to the use of alcoholic liquors all his life. He had the usual diseases of childhood, including scarlet fever, and at the close of the Civil War he was a sufferer with chronic diarrhoea, from which he recovered. The present trouble began two years ago, and was ushered in with vague and indefinite gastric disturbances, as follows: Pain in stomach and griping about an hour after the morning meal, followed by a watery stool, the whole train of symptoms consuming about 15 minutes of time. Occasionally there would be vomiting. There were no other symptoms until the skin lesions appeared four weeks prior to the patient's death. These began with a tingling sensation on the back of the patient's right hand, followed by intense redness extending over an

area the size of a half dollar. It appeared to the patient that blood was spreading under the skin as if a vein had burst. About five minutes later the process began in the other hand. There was no itching, and the fiery redness was followed by a number of small blebs or blisters. His tongue and tonsils became irritated on the same evening that the eruption appeared on the backs of his hands.

Case 8, Maryland Series.—Patient is a white man, aged 37 years, married. He was born in Martinsburg, W. Va., but has resided in Baltimore, Md., for the last fifteen years. A pipe-fitter by occupation. Patient had the usual diseases of childhood, including scarlet fever, as in Case 7 of the Maryland series. All his life he has used intoxicating beverages freely. The present attack is the only one the patient has had, and dates back about one year. Began with pain in stomach after eating, morning diarrhoea, and occasionally vomiting. For several weeks he has had pain on swallowing, and stomatitis has been a marked symptom only for about one week. The skin lesions first began on the feet, and later on the hands. From the onset of the first symptoms one year ago patient has been losing weight and strength. His appetite has not been good, his sleep disturbed, and he is very apathetic.

Notes on Pathology.—The pathology of pellagra is still somewhat obscure, because comparatively few autopsies have been performed upon patients dying of this alleged new disease. It is to be sincerely regretted that such is the case, because clinical symptoms and autopsy findings should go hand in hand in the solution of the perplexing problem of pellagra.

Pathological anatomy is one of the handmaids to medicine, and the elucidating science of bacteriology is another. I believe that when more autopsies have been performed on persons dying of pellagra, and when more cultures have been taken during life and at autopsy, the keynote to the situation will be discovered. We shall probably find that pellagra is not a germ disease, that its pathology varies with the duration of illness and the number and nature of complicating disorders, and that its existence depends upon a perverted and predisposed constitution. We shall probably revert more nearly to our original opinion, namely, that pellagra is a cachectic condition occurring in predisposed persons; that it has for its basis some chronic nutri-

tional or assimilative disturbance, and that diet, personal hygiene, and the aid of a few drugs will, in a majority of instances, restore the patient to health and strength.

I shall first append a few notes on the pathology of pellagra, written April 28, 1910. These are as follows:

"The pathology of pellagra is not constant. Different observers have described different pathological changes. These are usually discussed under the following three headings:—

"1. Changes in the intestinal tract.

"2. Changes in the nervous system.

"3. Changes in the skin.

"The changes in the intestinal tract consist of atrophy of the muscular coat, with intense hyperemia and occasionally ulceration.

"The most constant post-mortem lesion is alleged to be in the lateral columns of the spinal cord. This condition is one of degeneration, and it is most pronounced in the dorsal region. Practically no changes are seen in the lumbar cord.

"The skin changes are erythematous in type. At first there is congestion, followed later by pigmentation, and finally by desquamation.

"Of the four cases of pellagra occurring at the Mercy Hospital, which have just been described by Dr. Lockwood and Dr. Beck, two came to the autopsy table. They were Cases 3 and 6* of the series of seven cases of pellagra which have occurred in Maryland.

"Our first pellagra autopsy was performed on a chronic recurrent case of the disease in August of last year (1909). A striking feature was the presence of numerous granuloma-like bodies. When examined by the microscope these small tumor-like nodules or granulomata ('pseudotubercles') are seen to be composed of a necrotic center surrounded by spindle-shaped cells and small round cells.

"These granulomata are most abundant in the walls of the superficial blood vessels of the lungs, especially those of the upper lobe of the right lung. Next to the lungs rank the superficial blood vessels of the brain. Granulomata are also found in the stomach, intestines, spleen, kidneys and uterus.

"Another feature is the intense congestion noticeable in practically all the tissues and organs. An extreme degree of gastropnoia and

*Case 7 of the revised list appearing in the present paper.

enteroptosis was also pointed out at the autopsy.

"The liver showed chronic passive congestion, with numerous bacterial emboli in its smaller vessels.

"The stomach at its lower fourth is encircled by many varicose veins. Attached to several of these veins is a polypoid growth.

"The kidneys contain several small cysts, and show a condition of chronic diffuse nephritis. Numerous necrotic areas are also seen. The cortex is narrow, measuring but one-eighth of an inch.

"The heart weighed but five and one-half ounces, and its interior was filled with white clot. The proportion of the weight of the heart to the weight of the body was as 1 to 233, the patient having been reduced to 80 pounds in weight. The heart also showed the condition known as 'drop-heart.'

"With the exception of slight degeneration of the lateral columns of the cervical portion, the spinal cord shows no conspicuous change.

"The blood-vessels of the brain contain numerous granuloma-like masses. The brain weighed nearly forty-four ounces.

"The skin shows degeneration of its epidermic layers. The deeper of these have been transformed into keratin; the superficial layers have become gangrenous. The *cutis vera*, or true skin, shows little or no involvement.

"At our second pellagra autopsy performed on the 17th of the present month (April, 1910), but few granulomatous masses ('pseudotubercles') were found. These were confined to the lungs.

"There was, in this second autopsy, intense erythema or congestion of the entire alimentary tract. The rectum showed lesions which were probably healed ulcers.

"The mesenteric lymph-glands were markedly enlarged. This was one of the most interesting features noted at this autopsy.

"The brain showed edema, with congestion of its anterior portions.

"The skin lesions, confined chiefly to the hands and wrists, consisted in erythema, pigmentation and desquamation of the cuticle.

"To the naked eye the remaining tissues and organs appeared normal, excepting the thyroid body, which was atrophied.

"Microscopical sections from this second pellagra autopsy have not been studied.

"The subject of pellagra is of growing importance, and it is hoped that these few scattered remarks will stimulate an increased interest in the matter.

"Maryland physicians having suspected cases of pellagra should seek the co-operation of the city or State department of health."

Apropos of the foregoing paragraphs I wish to make a few amplifying remarks and add a few additional notes on the microscopy of pellagra. Upon further study I have found that many of the granuloma-like masses or "pseudotubercles" described above are in reality vascular thrombi, in various stages of organization. These have formed in the superficial vessels and also in the terminal vessels, causing, as in the case of the kidney, areas of focal necrosis.

This thrombosis of the superficial and terminal vessels is of especial interest as appertaining to the skin and mucous membranes. It constitutes, as I believe, the essential lesion in the production of the primary erythema and the secondary gangrene. Microscopical sections of the skin and of the rectum show this condition beautifully. In both instances where the superficial vessels are occluded, gangrene and sloughing have resulted.

To summarize: The following are the essential pathological lesions detected at autopsy on the Maryland pellagrins:

1. Thrombosis of its superficial blood vessels—cutaneous, mucous and parenchymatous, pathological entities which I believe are responsible for the initial hyperemia and moisture of the skin and its subsequent gangrene and denudation; for the erythema, gangrene and ulceration of the intestinal mucosa; and for the infarcts found in the kidneys, spleen, etc. It might be of interest to add that many of the lesions which I described in a previous paper as "granulomata," have been found to be thrombi in various stages of organization.

2. A marked degree of ptosis or displacement of all the abdominal viscera.

3. Sclerosis of the blood-vessels and of the parenchymatous organs—liver, spleen, pancreas, kidneys, etc. Even the pituitary body was markedly involved.

4. Enlargement of the mesenteric lymph-glands.

5. Atrophy of the thyroid body.

6. Evidences of chronic gastritis.

History of Recovered Case.—The one recov-

ered case of pellagra in the Maryland series of 31 cases has awakened unusual interest, and I shall append herewith entire a letter descriptive of it, received from Dr. Louis B. Henkel, Jr., one of the best known physicians of Annapolis, Anne Arundel County, who attended the patient.

Annapolis, Md., September 30, 1912.

Dr. C. W. G. Rohrer, State Board of Health,
Baltimore, Md.

Dear Doctor Rohrer:

In accordance with your request, I beg to give you all the information that I can at this time obtain in reference to the case of "pellagra" which I attended about one year ago, to-wit:

Ephraim Ennis, colored, aged 10 years, son of J. W. Ennis, colored, living at Davidsonville, Anne Arundel County, Maryland. The case was referred to me at the Emergency Hospital, Annapolis, by Dr. Albert G. Webster, with a history of having had an attack of supposed enterocolitis followed by emaciation, staggering gait, and scaly eruption of the hands and feet, which symptoms were more or less of a chronic nature. The earliest symptom appeared on or about May 15, 1911, and I first saw him on July 12, 1911.

At the time I was at a loss to know exactly what might ail the boy. However, I studied his case rather thoroughly, and during his stay in the hospital I had numerous physicians to see him in consultation, among whom were Dr. Joseph C. Bloodgood, of Baltimore; Dr. George Pickrell, U. S. N., and the entire medical staff of the Emergency Hospital. They all agreed with me that the case was very suggestive of pellagra; but only Dr. Pickrell and Dr. Bloodgood had seen cases, and their opinion coincided with mine.

I was only able to get an incomplete history from the boy's parents, and that was an obstacle in reaching a diagnosis. I have just heard from a resident of Davidsonville, and he informs me that the boy is working and in excellent health, so far as he can judge.

The treatment which I gave the boy, and which was continued after he left the hospital on August 13, 1911, was, after a few days of preliminary purging, etc., house diet, Fowler's solution of arsenic, hexamethylenamin and santolin, the latter drug being given him after he had vomited a round worm. I might say that I kept the boy in the open air as much as possible, and also gave him a ferruginous tonic after he left the hospital.

Dr. Rohrer, I am sorry that I cannot at this time give you a more definite description; but if you so desire, I am willing to get it up for you at some future date. The charts at the hospital have been mislaid, and I am therefore giving you what information I can recall from memory.

Hoping this will give you some idea of this case, and assuring you that I am always ready to give you further information, I remain.

Yours very truly,

(Signed) LOUIS B. HENKEL, JR.

I need hardly state that the foregoing description is one of the most lucid which we have concerning a case of pellagra from the inception of the disease until complete recovery of the pa-

tient. A careful perusal of it will aid the merest tyro in diagnosing the disease, while the line of treatment followed holds out suggestive hints on therapy.

Concluding Remarks.—In conclusion, I desire to state that a careful study of the clinical history and pathology of pellagra has convinced me that there are two or three requirements to be met, in order to treat this disease successfully:

1. In regard to diet. A strict regimen should be followed, as indicated in Dr. Henkel's letter quoted above.

2. Tonics should be given to overcome the alarming cachexia.

3. Hypodermoclysis, using normal salt solution, to increase the amount and fluidity of the blood, is undoubtedly of service. This would diminish the tendency to thrombosis in the superficial vessels, and also aid in the absorption of thrombi already formed. In many cases the profuse, watery diarrhoea attendant upon them makes hypodermoclysis almost imperative.

4. In chronic, recurrent cases of pellagra, alteratives are of service to counteract the symptoms due to sclerosis of the blood-vascular system and the parenchymatous organs. Cases apparently cured or relieved by the administration of salvarsan, Ehrlich's specific for syphilis, are probably those in which such changes are paramount.

6 East Franklin Street.

A CURSORY REVIEW TOUCHING THE PRACTICAL VALUE OF BLOOD PRESSURE ESTIMATION.*

By J. W. PRESTON, M. D., Roanoke, Va.

Until within the very recent past, the records of our hospitals lent us but little aid in determining the actual value of blood pressure estimation, and there was but one monograph in our language that treated it in a systematic way. To-day there is a widespread interest in this subject, but strange to say, the text-books in the hands of the general practitioner deny him its discussion in a way that would be most helpful: while on the other hand, as a means of furthering the sale of various pressure appliances, literature tending to the belief that it is an infallible guide to diagnosis and treatment is being widely

*Read before the forty-third annual meeting of the Medical Society of Virginia, at Norfolk, October 22-25, 1912.

disseminated and is perhaps swaying the pendulum a little far in this direction. It has seemed to the writer that an inventory of our stock, as it were, in an endeavor to ascertain just how far it can be made valuable in every day work would not be without interest.

Treated from this standpoint it is felt that the discussion will be more fruitful to pass rapidly the phases of the question that are settled and well known to all, and likewise those of a hypothetical and strictly scientific character with no direct bearing.

At this point, however, it seems worth while to note the change which has come over the profession as a whole in the use of certain drugs as a result of accurate blood pressure estimations in a large series of cases, notably the decreased use of alcohol as a stimulant due largely to Cabot's investigation, and the better selection of cases and conditions in which nitroglycerine is of use; though there are among us still, strange as it may seem, those who use both of these drugs in shock and similar conditions in which low vasomotor tone prevails.

It may here also be of aid in putting the subject in a true light to quote a recent admonition of Janeway warning against its too frequent estimation on account of the depressing effect upon the patient, just as an albumen estimation made too often upon a nephritic patient does more injury to his psychic make-up than the disease itself does to his physical.

Exactly also as in the interpretation of blood counts, so in pressure estimation both are not only valueless, but actually confusing unless one avails himself both of a working knowledge of the subject and all obtainable clinical data bearing upon a given case; however, its study may be facilitated by certain groupings of abnormal conditions.

Standing out most prominently as a matter of fact, is the question of the extremes of pressure and their relations, to diagnosis, prognosis and therapeutics; while there is a middle ground of varying pressures as shown in neurasthenia, exophthalmic goitre, and similar conditions, influenced so materially by functional derangements that little aid can be expected.

We will accept here Hirschfelder's figures of 115 to 120 mm. as the average systolic pressures in the normal adult; 30 to 40 lower for diastolic; with 145, rarely 160, upper limit in those

past forty years of age; 90, as the lowest normal limit. Females 7 to 10 lower. These values in recumbent posture, with five to ten higher on sitting or standing; 15 higher on smoking; 15 to 40 during mental work or excitement; and 10 to 50 on muscular exertion.

With the exception of cerebro-spinal fever, pneumonia, and the toxemias of pregnancy, the acute diseases may practically be dismissed with the statement that blood pressure estimations, taken through the course of the disease, are of very little value in that, beginning with a normal pressure for a given individual, the reading sinks steadily as toxins and general loss of vitality make their inroads upon the brain, spinal and sympathetic centers, and upon the muscular tissues of the circulatory apparatus; this fall being gradual or rapid according to the virulence of the poison and maintenance of nutrition. Bearing upon their prognosis, however, the question of an habitually high pressure in an individual is of the very greatest importance, showing not only that there is an underlying dyscrasia, but that the heart is carrying an undue burden from the start.

Robinson¹ states that cerebro-spinal meningitis is the one acute disease, barring kidney involvement, in which blood pressure rises. In sharp contrast stands typhoid fever, showing lowest reading.

Hare² calls attention to, and emphasizes Gordon's observation of the very great value of blood pressure estimation in pneumonia, in that when pressure readings fall near that of the pulse, it is red light of danger demanding judicious stimulation, and that when they pass each other it is a symptom of grave omen—statistics showing a very high mortality.

In this connection, it should be borne in mind that the failure of circulation in pneumonia is due mainly to a widening of the blood paths, and a damming up in the splanchnic region, rather than to cardiac failure; and the injunction of Janeway again may well be heeded "that with low pressure the clinical evidence of disturbed circulation may exist with a sound heart, and its estimation give conclusive evidence regarding peripheral resistance."

Then, giving due weight to the prevalent theory that high temperature is not a very great evil in pneumonia, one cannot but wonder if the time be at hand when the sphygmomanometer

SUPPLEMENT TO
The Virginia Medical Semi-Monthly

December 13, 1912

**THE PRESENT STATUS OF ARSENIC THER-
APY IN SYPHILIS.***

By THOMAS W. MURRELL, M. D., Richmond, Va.
Professor of Dermatology, University College of Medi-
cine.

The status of a drug is its rating of fighting strength—not what it can do in exceptional cases, nor what it has done, but what it may be expected to do in an average case with an average dosage.

This status can only be obtained in two ways:

First, by laboratory tests made, so to speak, in the open, where all the processes of chemical change or biological action may be noted.

Second, by administration to the diseased and the efficacy judged by the disappearance, temporary or permanent, of disease symptoms.

The difference in the two methods is all in favor of the first, for, though test-tube experiment may not be borne out by therapeutic experience, it is scientific. It is the tremendous power of a fact. Whether we may make practical application of this fact is another matter. But if we cannot, yet some one will, to the world's advantage. Facts are unchanging, but man's judgment varies from year to year.

*Read before the Richmond Academy of Medicine and Surgery, September 24, 1912.

Sarsaparilla and guaiac are testimonies to this statement. It is said that at Genoa in early sixteenth century a shipload of guaiac bark sold for its weight in gold. Why? No laboratory experiments here, but the belief of men that guaiac modified the symptoms of syphilis.

Those old physicians were not fools. They thought they saw, but did not see. In the laboratory we know what and how we see, and this is the difference between arsenic therapy and other forms of treatment in syphilis.

The use of arsenic in syphilis is not new. It has always been a drug of more or less mystery. The older writers termed it an alterative, apparently meaning a drug that altered existing conditions that readjustment might take place along new lines. It has always been valuable in combating the anæmia of syphilis, and its combination with mercury in Donovan's solution is well known and deservedly used.

Arsenic, however, as referred to here is used in a different sense, for the Ehrlich products are spoken of as specifics.

The term specific has been used with different meanings. As it is popularly applied, it means a drug that has an absolute curative action on any case of a given disease. As there never has been, nor probably ever will be, such a drug, an absolute specific is an ideal. Quinine and diphtheria antitoxin are, however, generally classed as such, as are by many the preparations known as salvarsan and neo-salvarsan.

An older interpretation of the term specific is

that of Butler, who says in one of his earlier editions: "These drugs are unnatural to the system, though acting specifically and in some unknown way against certain diseases or morbid conditions. They are given with a view of influencing the course of the disease itself, not for their effect on the symptoms alone. If administered for any length of time, there is danger of causing an artificial disease because of the characteristic action of these medicines which differs essentially from their remedial influence. When used as specifics they do not produce or relieve symptoms except by renewal of health or by removing either the pathological condition or the disease." He then mentions mercury as a typical specific.

Let us keep these two definitions in mind, as the status of mercury must be that gauge whereby the status of arsenic is to be determined. When it comes to decision between the two drugs, many physicians seem to be slightly sentimental. They act as though they were called on to neglect an old friend, and a few seem to be really pleased that salvarsan has not lived up to its early hopes.

However, the physician has no right to neglect a remedy because it is not a worker of miracles. The one consideration is whether it is the best remedy he can employ. Since there is only one other remedy to use, this brings us to a comparison of the two.

Mercury has been used these thousand years. It has been the bulwark of humanity and the

salvation of the world, but despite its thousand years of use I venture to state that the real status of salvarsan is the more firmly fixed.

We know how salvarsan acts and why we achieve the results we see. We see our failures and know the cause of such failures, but the most that can be said for mercury is that we give the drug and expect results. How it acts and in what manner our results are obtained we do not know.

Four years of scientific knowledge is worth a million years of empiricism.

Mercury may act as a germicide, but if it does its action is of the slowest. Can we conceive of a germicide that kills after three years' use? As well consider old age a germicide!

Germicides act best in maximum doses, but here we give the moderate dose over an extended period.

No less a man than Metchnikoff says: "As syphilis is a malady which can undergo spontaneous cure, and which is nearly always very amenable to proper treatment, it ought to be very interesting to find out the ways in which a cure is effected. For this research monkeys should provide a good field, as in them syphilis is cured spontaneously in all but a few rare cases."

Levaditi has undertaken some work on this point. He has satisfied himself that the spirilla persist for a long time in primary sores, even when they appear completely healed. Many other observers have followed the life-history of

the spirilla in human syphilis when treated by mercury. Some have been struck by the long persistence of these organisms when the cure seems to be quite perfect. Thus Galli, Valeris, and Lassueur found a large number in an ulcerated papule which was nearly healed, and even after 20 centigrammes of sublimate had been injected. Levaditi and Sauvage have found spirochete pallida in the blood and organs of a syphilitic infant whose mother had been treated with bin-iodide of mercury and iodide of potassium from the second month up to the end of the pregnancy. On the other hand, some workers, among them Levy-Bing, have found the spirilla disappear after mercurial treatment. *"The cause of the disappearance of these organisms has not been settled, and it is quite possible that the action of mercury is towards strengthening the defences of the body rather than any direct lethal action on the spirochete themselves."*

This quotation is from the Oxford System of Syphilis, published in 1908, before the discovery of salvarsan, but not before the discovery and use of the Wassermann reaction. This, the complement fixation test, may throw some light on the subject.

It is a well-known phenomenon that mercury has a disturbing influence on this test. Let us take two cases, hypothetical, but easily duplicated in practice:

First, a case of florid syphilis.—Mercury is administered. Before the lesions are entirely

healed we find the spirochete. A Wassermann made at this time will be almost certainly negative.

Second, a similar case.—Administered salvarsan. In a week's time no spirochetes can be found. A Wassermann in all probability will be positive.

This shows a decided difference in the action of these drugs. We know salvarsan to be a direct spirillacide. We do not know what causes the Wassermann, and we do not know the action of mercury. It is, however, highly probable that the results of the Wassermann are due to the presence in the blood of products from or due to the presence of spirochetes in blood and tissue. If this be so, we can readily understand a drug that would kill spirilla and not change this by-product.

Following out this chain it is the writer's belief that mercury could and does act as a neutralizer of syphilitic toxins. We give it to a patient over three or four years, and in all that time, by its neutralizing action, syphilis is prevented from working harm. Due to the presence of the disease, anti-bodies are constantly forming, and at the end of three years have, so to speak, assumed control of the situation.

This would explain not only the cases we mentioned, but account for the phenomena of immunity as well.

Salvarsan is a chemical whose construction is known. It has been tried in laboratory experiments and here has acted as a specific in the strictest sense.

It has been proven that when salvarsan has been brought in contact with the organism known as spirochete pallida, the death of that organism invariably results.

When we convert the arterial and venous system of the human body into one gigantic test-tube, we achieve the same results, but unfortunately the disease is not limited to the test-tube alone.

The pathology of syphilis consists essentially in the proliferation of cells, and if this proliferation be dense enough the blood supply to the part is cut off. This is that scheme of ulceration known as the chancre. Now, obviously, if the spirochete inhabits this mass of bloodless tissue, we cannot reach it by our treatment and, therefore, we do not eradicate the disease.

This cell proliferation and the cutting off of blood supply is the frontal flank and entire attack of syphilis, and with similar conditions as the chancre existing all through the body relapses are easily explained. These facts are a basis for action.

Syphilis is in practically all cases a skin infection, and is carried through the lymphatics. This being so, and glandular obstruction being present, there is a considerable length of time, perhaps two weeks, before syphilis is more than a local disease.

Time was when it was an accepted rule not to treat syphilis until the appearance of secondary symptoms, for no man, however skilful, could with certainty differentiate the venereal ulcers.

This was a good rule and served its purpose until Fritz Schaudinn discovered the spirochete pallida and converted a good rule into a crime.

It is a crime to wait until a disease becomes systemic when we can recognize it in its initial lesion. It is a crime to wait until one exposed chancre is converted into a thousand that are concealed.

This is the physician's golden opportunity. If the chancre be on the prepuce, circumcision can be done; if elsewhere, curetting and cauterization will yield the same results. We must remove that barrier of tissue too dense for blood to penetrate, and where blood goes it can be made the vehicle of salvarsan and syphilis can be cured.

The surgeon is a persistent man, and for years he has preached and begged for the early operation in appendicitis until even the laity are awake to this necessity.

No longer does the country doctor wait for peritonitis to drive him to surgical help, for now he knows that appendicitis diagnosed, the very minutes count.

Let that same cry be raised with the venereal ulcer, for syphilis diagnosed in the chancre stage can be cured. Let the hue and cry be raised of emergency syphilis and we will achieve results as yet undreamed.

17 East Grace Street.

may with advantage replace the thermometer in the hands of the nurse in this disease.

The toxemias of pregnancy leading to eclampsia may appropriately be here classed among the acute diseases.

One who has seen the onset of terrific convulsions in a woman with an albumen-free urine, or who has on the other hand seen a goodly quantity of albumen with no symptoms, searches the text-books now on the market in vain for a definite statement as to whether blood pressure normally runs higher in pregnancy, and for readings in a series of cases of suspected toxemia, though all agree that after the onset of labor, it is materially elevated, due to muscular exertion. Discussions in current literature are likewise scant. In order to get the gist of the matter, the writer forwarded a series of three questions to the five authors of our leading text-books of obstetrics.

To the first question, "Do your observations lead you to believe the normal blood pressure preceding the onset of labor, to be higher than in the non-pregnant woman?" of the four replying directly, Hirst, of Philadelphia, and Edgar, of New York, hold that there should be no rise. Webster, of Chicago, states that there usually is a slight rise. Davis, of Philadelphia, holds that there is a uniform rise from 10 to 30 m. m.

To the second question "Do you find toxemias leading to eclampsia, either in the presence or absence of albuminuria, uniformly accompanied by an abnormal rise of blood pressure?" all replied in the affirmative, including Williams, of Baltimore; though Davis notes the exception that in certain desperate cases, there may be an abnormally low pressure.

To the third question, "Do you consider blood pressure estimation of material aid in the prognosis and treatment of such cases?" all replied in the affirmative, Edgar and Hirst very emphatically. Williams stated in addition that "The higher the pressure in the pre-eclamptic state the less amenable he considers the patient to prophylactic treatment," but modifies it by the further statement that he believes that blood pressure *per se* has nothing to do with the production of eclampsia. Webster modifies his reply by the statement, "It is useful, but personally I can get the same information with my fingers."

In a recent article, Greene³ calls attention to a non-toxic type of albuminuria in pregnancy with low blood pressure.

A summing up of the whole situation, then, would seem to indicate that blood pressure readings are of very decided value both in suspected and genuine toxemias of pregnancy.

In the realm of chronic conditions, as would be expected, exhausted individuals show low pressure; and if to these be added the depression of the toxine of disease, it is still further reduced, making it necessary in either case with such a showing to exclude the more common wasting diseases, excepting, of course, involvement of the kidney structure itself. At the head of this list stands tuberculosis and Addison's disease, the latter making its imprint both by exhaustion, and robbing the blood of the pressor substance of the adrenal.

Edgcomb⁴ holds that there are certain cases of lumbago, sciatica, and neuritis, due directly to a low blood pressure, resulting from the irritation of a highly phosphatic urine upon its passages, which is quickly and surely remedied by the administration of an acid and toning up the digestion. Likewise, that low pressure in exhausted individuals may in itself be the cause of an undue sense of fatigue.

The tangled skein of high pressure cannot be unravelled until we fathom the mysteries of food metabolism, of the bearing of the various internal secretions, and an unending maze of mental and physical processes, all of which have a signal influence. Still, here and there we are making a beginning.

Towering above all stands that of interstitial nephritis. Next to kidney involvement and hopelessly confused with it is that dependent upon a chronically deranged metabolism. This is as obscure as the function of the liver and pancreas themselves; when we fully understand the physiology of the one, an intelligent beginning of the pathology of the other will have been made.

Bearing upon these is Lee's⁵ review of fifty-three cases in the Massachusetts General Hospital, in which he concludes that no case with a tension of over 200 is without a kidney lesion; likewise, that of Janeway⁶, who states that a nephritis for years or throughout its entire course may give only cardio-vascular symptoms; indeed, in many elderly people merely those of

a mild neurasthenia, with a normal urine for long periods.

Over against these stand the vast and increasing array of cases past middle life with a pressure rising into the danger zone with but little suspicion of kidney involvement. Whether due to muscular or mental strain, to an excess of nitrogenous food, to alcohol and tobacco, or to that cloak of all evils, the gouty diathesis, as the poison increases there is one inevitable result, the vessels must continue to fortify themselves by a thickening of their walls and the heart must hypertrophy to overcome the added resistance, and an unending chain of evils is set in motion. Hewlett⁷ holds that we are more and more coming to the conclusion that high blood pressure comes first and involvement of kidneys and vessels are incidental.

Contrary to the current belief, it is now conceded that arteriosclerosis may become very general without raising the blood pressure, unless that great highway of the vascular system, the vessels of the splanchnic region or the aorta be involved. Of all cases, about sixty per cent. show an increase of tension. Out of the remaining forty per cent. arise those cases of cerebral hemorrhage or cardiac failure due to local sclerotic areas of the vessels which steal upon us unannounced, like a thief in the night.

The one important aid the taking of blood pressure affords us in arteriosclerosis is the increased pulse pressure produced by the rigid arterial tube failing to widen with each heartbeat, thus throwing the greater difference between the systolic and diastolic reading.

In diseases of the heart itself we are also disappointed in seeking the aid which many expect, this no doubt being partly due to the ability of a normal heart to increase its output fivefold on demand, some part of which reserved power is still inherent in a crippled heart. This, together with the other agencies of pressure control, conspire to keep the tension at or near a normal level until the struggling organ exhausts its last resource. It is, however, of particular interest to note how the pressure falls in hypertension with a heart growing unequal to its task; and how, upon putting the patient at rest, the pressure gradually resumes its former level, with decided improvement of all symptoms.

Coming now to the all-important phase of this subject, treatment, it is self-evident that far and away ahead of all other measures must stand the

removal of the cause—which involves the most minute scrutiny of all the evidence in each individual case.

The treatment of low tension, due to wasting disease, is that of the disease itself; that due to capillary and splanchnic stasis, such as shock, anaphylaxis, and pneumonia, by adrenalin, strychnine, camphor and caffeine, as indicated.

The treatment of high tension, due mainly to spasm of the vessel or a beginning fibrosis, yields far better results, as would be expected, than in cases in which pathological changes are further advanced; here we perhaps cannot do better than quote Wells⁸, to the effect "that the blood pressure which rises gradually through a long period of time, and is accompanied by cardio-vascular and nephritic changes, is probably fundamental, and cannot be materially reduced; and it may be questioned whether this should be attempted." Indeed, this seems to be a problem similar to that of our newer understanding of hyperemia of inflammatory conditions, and of high temperature in certain diseases; after all, a conservative process to be guarded rather than heroically combated.

In the way of prophylaxis of the exacerbations very much may be done alike in making a patient comfortable, shielding him from cerebral hemorrhage, and cardiac failure. Following the regulation of exercise comes the removal of digestive disturbances by proper diet and judicious purgation. The writer's feeling, after considerable personal experience and a review of the literature, is that mental hygiene ranks next, if not of equal importance. It is, indeed, his observation that the avoidance of worry, nagging cares, and the importance of restful sleep do not by any means receive the attention they deserve. The nitrites are fleeting but relieve symptoms, especially in crises. The observations of ⁹Wallace and Ringer seem to show that erythrol tetranitrate is probably most lasting and effectual of all, but sometimes produces severe headache and even collapse. The extract of mistletoe is a new candidate seeking favor. The good effect of electricity in its various forms is still questioned. The iodides in small doses in some unexplained way are of undoubted benefit, especially in those cases due largely to arteriosclerosis. In the toxemia of pregnancy, the question of inducing labor naturally presents itself. Hirst¹⁰ holds that this should be done in case pressure persists over 150 m.m. after a

thorough trial of the various remedies at our command; but that since pressure falls almost invariably on the puncture of the membranes, this procedure is usually sufficient to relieve symptoms, and that it is then better to wait until labor follows of its own accord.

In conclusion, the writer desires to express his thanks to the authors of the obstetric works above mentioned, who have kindly given him the information requested, especially to Dr. Edgar for advanced sheets of his text-book now in press; and would sum up as follows:

First, that too frequent taking of blood pressure may have a depressing and harmful effect upon the patient.

Second, that in acute diseases it is of very little practical use except in pneumonia and toxemias of pregnancy, in which it is very valuable.

Third, abnormally low readings usually indicate exhausted or toxæmic conditions; and tuberculosis in particular must be excluded.

Fourth, in arterial and cardiac conditions it is not a reliable guide, but in certain dyscrasias leading to these there is an increasingly high tension.

Fifth, hypertension may be necessary to the proper functioning of the body in certain conditions, and its reduction should be effected judiciously, if at all, after a careful study of the underlying causative influences in each individual.

REFERENCES.

1. Robinson, G. C., *Archives Int. Med.*, May, 1910.
2. Hare, H. A., *Therapeutic Gazette*, June 15, 1910.
3. Greene, R. M., *Boston Med. and Surg. Jour.*, April 28, 1910.
4. Edgcomb, *Practitioner*, April, 1911.
5. Lee, Roger I., *Jour. Amer. Med. Assn.*, October 19, 1911, page 1179.
6. Janeway, Theo. C., *Albany Medical Annals*, March, 1911.
7. Hewlett, A. W., *Jour. Amer. Med. Assn.*, May 25, 1912, page 1627.
8. Wells, E. F., *Jour. Amer. Med. Assn.*, October 7, 1911, page 1183.
9. Wallace and Ringer, *Jour. Amer. Med. Assn.*, November 13, 1909, page 1629.
10. Hirst, B. C. *Amer. Jour. Obstetrics*, September, 1910.

309 South Jefferson Street.

North Carolina, like Virginia, seems to be having a time in securing full-fledged pharmacists. It is announced that out of a class of sixty-three appearing before the State Board of Examiners of the North Carolina Pharmaceutical Association the last of November only thirty were successful.

INDICATIONS FOR CAESAREAN SECTION.*

By VIRGINIUS W. HARRISON, M. D., Richmond, Va.
Associate Professor of Obstetrics, University College of Medicine.

Twenty years ago, surgeons were not at all united as to what cases of appendicitis should be operated on. Definite indications were only reached after great experience and greater controversy. The same will be recorded in regard to the indications for caesarean section when the final paper has been written.

Cœliohysterectomy, or classic caesarean section, has been done for many years, but improved surgical technique has brought forward the subject with renewed interest and a greatly reduced mortality, thereby widely extending the indications for the operation.

During the years 1787 to 1876 the mortality in some places from this operation was one hundred per cent.; now it is done by any experienced abdominal surgeon, in selected cases, with a mortality of a little over two per cent.

The indications for caesarean section could be divided and discussed under the following heads:

1. When done by a capable surgeon under suitable surroundings.
2. When done by the city obstetrician with skilled assistants, and
3. When done by the country doctor who has very little help and poorer asepsis.

The mortality will be great in the third class, less in the second, and very small in the first class.

We could also discuss the route of the operation, whether it should be abdominal or vaginal; but I will limit this paper to the indications in general for the operation, supposing it to be done by a skilled surgeon and in a properly equipped hospital.

Indications for caesarean section are: 1, placenta prævia; 2, eclampsia; 3, contracted pelvis or large fetus; 4, pelvis obstructed by an immovable tumor or other growth which may delay labor; and 5, cancer of the cervix, vagina or rectum.

In presenting this paper, I will claim nothing original, and will try to present the views of others as I gather them from literature, possibly quoting some without giving credit therefor. My desire is to create a discussion of this

*Read before the forty-third annual meeting of the Medical Society of Virginia, at Norfolk, October 22-25, 1912.

live subject which is increasing in importance with great rapidity.

Equally skilled operators differ so much in regard to some of the indications for this operation that it will be hard to draw many definite conclusions.

Placenta Prævia.—Most authorities are practically united in the opinion that in primipara with central implantation of the placenta and an undilated cervix, the indication for cæsarean section is absolute and allows of little debate. Even when the placenta is marginal and the loss of blood is considerable, with the same condition of the cervix, the indication is clearly the same.

The opinion of these gentlemen is not so uniform when the cervix has been stretched by a previous labor, and is capable of dilatation by Harris's method, and the child delivered manually or by forceps. The majority are in favor of the latter method. Some cases may be presented which will certainly be border-line in classification, and either method may be the operation of choice under certain conditions, McPherson (*J. A. M. A.*, September 7, 1912) states that the maternal mortality from placenta prævia is from 11 to 18 per cent. and the fetal mortality is from 40 to 57.3 per cent. Under cæsarean section, he says the maternal mortality is less than 4 per cent.

For these operations to have a low rate of mortality, it is presupposed that the woman has not been infected by unnecessary vaginal examinations, and no attempts have been made at delivery by other methods. Williams, in his textbook (1912), in discussing the operation for placenta prævia, says: "While admitting that such a procedure may be justifiable in rare instances, I agree with Holmes that it is usually unnecessary, and if adopted in a large series of cases would not decrease the mortality of the affection."

On the other hand, Davis, Peterson, Burns, Stillwagon and others agree with McPherson as quoted above; some of these who believe that cæsarean section should be done, prefer the vaginal to the abdominal route.

The vaginal route to my mind is not indicated in many instances, as any cutting operation either through or near the placental site would predispose to greater hemorrhage. We all realize the greater liability of women with

placenta prævia to sepsis, and to deliver the patient with that rapidity which is often necessary, borders on what Williams calls "brute force." Even if we are successful in delivering a live child, we are apt to have a badly mutilated woman, which Davis remarks, in speaking of difficult labors, "no skill known to surgery is equal to repairing them, and the children so delivered are often subjected to such forcible manipulations, compression and injuries that we marvel that they survive."

There seems to be no reason for delaying the operation in a primipara with placenta prævia, if she is losing a quantity of blood and has an undilated cervix, nor even if the placenta is centrally implanted and no blood is being lost. Neither should we delay in multiparæ if there is a rigid cervix from cicatricial tissue or contracted pelvis. The above opinion presupposes that the obstetrician has not tried to deliver by other methods, and does not present a patient infected, mutilated and exhausted in strength, so as to be a bad surgical risk for any operation.

If, on the other hand, this woman be subjected to operation at the beginning of hemorrhage, the shock from the operation, plus blood loss will not be greater, if as great, as would be from manual dilatation and high forceps delivery. There will be clean wounds to heal after a section and little if any morbidity.

My own experience with placenta prævia at term has been limited to nine cases with no maternal mortality. All women had had previous labors. The fetal mortality was seven. The morbidity was not great except in one case. This woman was in her sixth labor; the last three had been cases of placenta prævia. She was attended by a different obstetrician each time. The time I attended her, as in the labor just previous she had thrombophlebitis of the right pelvic veins. In both labors she was ill for three months, and made a partial recovery. I am inclined to believe from the history obtained that her real infection began with her first placenta prævia, and that had a cæsarean section been done at that time, she would have been saved a life of morbidity. After these bloody operations, we can often make a lasting impression on the family by assuring them that we were very fortunate in saving the life of the patient, much less the child. This, of course, is neither scientific nor practical obstetrics.

The time is now at hand when we should be satisfied only when we have delivered a woman with as little damage done to her anatomy as possible, and with a child free from injury. We must educate the public that a safe *cæsarean* section with health to follow is much better than an instrumental or manual delivery with possibly an idiotic child and an invalid wife. The people are going to be educated along this line, and if we do not educate them they may unpleasantly unexpectedly educate us.

Eclampsia.—As in medicine so in obstetrics, we are drifting slowly but surely towards the prevention of diseases. *Eclampsia* is one that may be prevented. At present, this may sound more like theory than practice, yet with improved methods of study and with the distinction being made between the various toxæmias of pregnancy, we will be able to recognize the early symptoms and apply the correct treatment, or operate in time to prevent permanent damage being done to the maternal organs.

"There can be no *eclampsia* if there be no pregnancy; therefore, the best remedy is to rid the woman of the cause." Here again the *primipara* comes in for our serious consideration. They are the hardest to deliver. It is true that labor pains frequently are coincident with the convulsions, yet these pains are not always of sufficient strength and frequency to dilate the cervix and deliver the child in time to prevent permanent maternal damage. When, then, we have a woman with an undilated cervix, if she be a *primipara* and the convulsions are following each other with rapid succession, or in a *multipara* with a contracted pelvis, or any obstruction that will delay delivery, *cæsarean* section is indicated. The operation of election gives the best results—that is before infection or mutilation of patient.

The vaginal route appears to be the preference of most operators. Hirst (*Text-book Obstetrics*, 1912), with an experience of two hundred or more cases, says, "if the patient fails to respond to medicinal treatment, the evacuation of the uterus should be tried by vaginal *cæsarean* section, by forced dilatation of the cervix or even by the abdominal *cæsarean* section." He also says there is no doubt in his mind that much the lowest mortality is secured by avoiding *accouchement* force as routine treatment.

Peterson (*A. J. Obstetrics*) reports five hundred collected cases of *eclampsia* with a maternal mortality of 28.9. He states that if the patient is operated on after the first convulsion, the mortality is as low as 18.5 per cent. McPherson agrees with Peterson, and says "the inactive policy which is somewhat natural to the obstetrician, who is justly conservative in his methods, may be and usually is the worst possible treatment for *eclampsia*."

Williams believes that the vaginal section should be done, and the abdominal route only when associated with contracted pelvis.

Stillwagon thinks the operation is indicated in *eclampsia* of *primipara*, or in any condition in which other methods would cause delay or unusual trauma to mother and child.

T. M. Burns has done seven consecutive sections and saved all mothers and all children. Zinke, on the other hand, reported to the American Medical Association in June, 1912, that he had treated nine cases of *eclampsia* without operation, and had neither infant nor maternal mortality. While he advocated *cæsarean* section eleven years ago, Dr. Zinke performed his first operation two months previous to and reported it at the meeting of the American Association of Obstetricians and Gynecologists in September, 1912.

Montgomery reports as follows: "In many of these (*eclampsia* cases) vaginal *cæsarean* section may be the method of choice, but if the pelvis is slightly contracted and the woman comes to her first labor threatened with *eclampsia*, with high arterial tension, the chances against both mother and child will be greatly reduced by the employment of *cæsarean* section."

In a series of 715 personally conducted labors at term my only maternal death occurred in a *primipara* with *eclampsia*. In this case the convulsions were recurring with great rapidity when I first saw her. The cervix was dilating, and, by the use of Harris' method, dilatation was completed. The first child, delivered by forceps, died during delivery; the second child, presenting by the breech, was delivered manually. This child is living and well, now four years since birth.

The laceration of the mother was extensive, which was repaired by the immediate operation to control hemorrhage. The convulsions con-

tinued in the same frequency until death forty-eight hours after delivery. Had this patient been seen before labor the convulsions might have been prevented, and had she had a cesarean section she might have had a better chance for her life.

We must realize, however, that eclamptic patients stand operations of any kind badly. Seitz (Hirst's Obstetrics) quotes 123 cases in which convulsions ceased after emptying the uterus, and yet 20 per cent. died.

Contracted Pelvis.—In contracted pelvis our chief concern is whether the passage is large enough for the passenger. We have no absolute way of demonstrating this knowledge, unless we agree with Barbour when he says that the fetal head is the best pelvimeter. Numerous instruments have been invented and many methods have been promulgated for determining the length of the various diameters of the important planes of the pelvis which the fetal head must traverse, yet they are only relative in their result. We can only estimate the probability of success. We have to take into consideration the separation of the bones of the pelvis; the extent of moulding to which the fetal head is capable, and the extra force that may be developed by the maternal voluntary muscles. All these conjoined will bring about surprises at times, and allow the unexpected to happen.

At present a conjugata vera measuring 8 cm. or less indicates cesarean section in an uninfected woman. This is especially true after the test of labor and there is no engagement of the head in the superior strait. I am speaking of cases not seen until the onset of labor, not of those cases in which labor might have been induced at the thirty-sixth week, nor of those cases in which pubiotomy might be indicated.

Bacon says that "statistics show that the possibility of spontaneous labor with a conjugata vera of 9 cm. to 10 cm. is 70 per cent.; 8 to 9 cm., 40 per cent.; and from 7 to 8 cm., 10 per cent."

W. M. Sprigg reports fifteen consecutive cesarean sections for deformities of the pelvis without a maternal death, and only one infant perished, that being due to the anesthetic.

H. M. Miller says "high forceps should not be used unless the surroundings do not justify cesarean section and then be prepared for an infant mortality of 15 per cent., and a ma-

ternal mortality equal to elective cases of section and more morbidity."

A. B. Davis thinks the most favorable time to operate is just before or soon after labor begins. He says "we very often regret delivery by forcible means, and very seldom believe we have made a mistake in electing the abdominal cesarean section." He reports one hundred operations for contracted pelvis in a series of one hundred and thirty-four sections for all causes. In the total operations he had a mortality of seventeen; and of the one hundred and thirty-six (twins twice) children, twenty-four died. Fifteen of these children were born alive, yet died before the mothers were discharged from the hospital. Attempts at delivery had been made in eight cases before he saw them and were infected, and some were about to die.

An enlarged child with a normal pelvis would give the same indication for cesarean section as the reverse of this condition.

Pelvis Obstructed by an Immovable Tumor.—At examination at about the sixth month, which, by the way, should always be done, if a tumor be found which would be likely to interfere with labor, it should be removed with the hope that pregnancy will go on to term. Sometimes we find tumors, such as dermoids, occupying the pelvis, which will allow the child to pass, especially when the pelvis is roomy and the child is small. I remember one case that I saw for the first time, when she was in the beginning of the second stage of labor. On vaginal examination I found a tumor imbedded in the pelvis. I immediately began preparations to remove her to the hospital for section. While at the 'phone I was told that the child had been born.

Cancer of the Cervix.—In cancer of the cervix we usually have an indication for the operation under consideration. By nature of the disease we have an unyielding condition which will lacerate and not stretch. If the cancer is discovered early in pregnancy, it is better to operate early with the hope of saving the mother. If the diagnosis is not made until late in pregnancy, the opinion seems to prevail that we should wait until the child is viable, then by section remove child and cancer.

Sometimes cancer of the vagina and even of the rectum may interfere with delivery and become an indication for cesarean section.

Other conditions have been mentioned as in-

dications for the operation, which I will only mention in closing.

Physiological incapacity in a senile uterus—in other words, where a woman has married late in life, and the uterus has begun to atrophy, and has not the power to deliver the child, even when assisted by the voluntary efforts of the woman.

Some writers predict that in the early future delivery by the high forceps will be displaced by section. Another indication spoken of is where the membranes rupture early in labor and tonic contraction of the uterus exists, thereby threatening rupture of the uterus. Again, there may be obstruction to labor due to a previous fixation operation.

My primary intention in writing this paper is to have a discussion of the most common indications for cæsarean section, viz., placenta prævia, eclampsia, and contracted pelvis.

The statistics of surgeons give an undoubted lessened morbidity to the mother, with a more decided lessened mortality for the fetus, to say nothing of the lessened number of children with birth paralysis and other injuries to the head which may render them a life-long invalid.

401 North Allen Avenue.

A PLEA FOR MORE CAREFUL WORK AMONG COUNTRY PHYSICIANS.*

By A. M. BURFOOT, M. D., Fentress, Va.

In presenting a paper upon the subject of more careful work, it is to the country physician I wish to speak, because, being a country practitioner myself, I fully realize and observe the necessity of being more careful. Yet, if I were thoroughly familiar with the city physician's work, I doubt not in the least, but what few feeble remarks I make on the subject would be equally as applicable to at least some of you city men present, as to the country fellow.

I wish it distinctly understood in the beginning, however, that no insinuation is made as to the ability of country physicians, for indeed they have just the same training as the city fellows, and I believe them to be just as capable, but of course working under less favorable circumstances. If, however, you will review the history of our most successful physicians of today, you will find that many there be, who re-

ceived some of their most inestimable experience in the rural districts, where they began work and gained a start in their profession.

Some years ago, while in the city of Richmond one day, I visited Dr. Stuart McGuire's clinic before his class at the University College of Medicine. The case at hand on this particular occasion was one of osteo-sarcoma, involving the elbow joint, and referred from a country physician. In addressing his class the doctor remarked, that among all his referred work, some of the best diagnosed cases came from the country doctor.

Now if the country physician has had just as good training as his city brother, and possesses just as much ability, and sometimes more, even though he may not have as good facilities for his work, then arises the question, why should he be so careless? I am not sure that I know, but from an experience of seven years, in a section where doctors are thick, and seeing so much of this carelessness, together with taking the subject up with many of my fellow practitioners, where they say the same conditions exist, I have drawn certain conclusions which I propose to present to you gentlemen, trusting it may cause us all to be more careful.

First: They are careless with their tongues. The Bible speaks of the tongue as an unruly member. Yea, I have found physicians no exception to this. This carelessness of the tongue may be due to many reasons. Possibly for self-gain; trying to make some poor, ignorant creature think you are everything and the other fellow nothing. Sometimes it is that you say something unkind about your brother M. D., hoping to kill him so to speak and yet raise yourself in your patient's estimation. It may be in thoughtlessly revealing the secrets of someone's home. Here we should be particularly careful, for by virtue of our profession we are privileged to know conditions of the home which are known to no other people beyond the family circle, and in revealing our knowledge of such conditions, we lower the dignity of a profession of which Christ himself was and is the leader. Next to the ministry of God the physician should command the highest respect, but by the careless use of the tongue we cannot. I think it was Dr. Howard Kelly, Professor of Gynecology in Johns Hopkins University who once said to his class that a preacher sees a family at its best, a

*Read before the forty-third annual meeting of the Medical Society of Virginia, at Norfolk, October 22-25, 1912.

lawyer at its worst, but a doctor sees things as they really are. Now this being the fact, let us be more careful with our tongues, for, if we are not, we lower the standard of our profession, and make it embarrassing for the man who is conscientious, and possesses a careful tongue. Always say something kind about your patients, and especially your brother practitioner, for above all enemies, I am inclined to think doctors are the worst towards each other, and the real cause of this is the laity. The laity, I am sure you gentlemen have realized long ago, are a set of liars, so far as making good fellowship among doctors is concerned, but this can all be remedied if we will only be careful with our tongues.

Second: They are careless in diagnosis. I say careless in diagnosis because I know not how to get at what I want to bring out except under this heading. Personally I have seen many cases that were pronounced various names and diseases that I could not think it a mistake or ignorance on the part of the attending physician, but, on the contrary, carelessness. If you are called to a case that indeed seems very sick, and the symptoms look alarming from the first—that is to the loved ones who are mightily interested as to the welfare of the patient—but you soon find out that it is only some minor condition as malaria or biliousness, do not be careless and diagnose the case as typhoid fever, and then go to work and tell all the neighbors So and So has typhoid fever. A few more days and the patient is well. All right for that doctor, he is a smart fellow, cured So and So of typhoid fever in a few days. Presently your neighboring physician is called on a real case in the same neighborhood. Then arises the question, "Well look here Doctor, Mrs. A. across the road had a case of typhoid and Dr. So and So cured her in a few days. What is the trouble you cannot do it?" This illustrates the point of a man who is careless, and, I might add, lying for self-gain, and such are the characters who make it hard for the honest, careful fellow, who is trying to do the right thing. I trust that God may hasten the day when such men shall be made to cease such work, and our profession refuse to recognize them as members thereof. I can understand how we all make mistakes in diagnosis, for above all complicated studies, medicine and the human body are conceded to be the greatest,

yet we country fellows here in Virginia have no excuse for practicing in the dark ages when it comes to a question of typhoid diphtheria, tuberculosis, hookworm, etc., for indeed, I believe we have a State Health Department second to none in the country, so far as my knowledge goes. They beg you to let them help you in all the above mentioned diseases, and most anything else, if you will only let them, that we may not make careless diagnoses, but on the contrary be careful that we may give to the people of Virginia what justly belongs to them; namely, careful service. Personally, I avail myself of every opportunity of help they offer. This puts as good facilities at our command as the city fellow has. While not so quick to know the results of these examinations, yet in about thirty-six hours I can get a report by mail, and by phone or telegraph much quicker.

Then be careful in your diagnosis, and do not call a simple bronchitis, pneumonia; tonsillitis, diphtheria; bellyache, appendicitis, but be square, honest men, and if you do not value your own opinion of a case highly, above all be careful for your neighbor who does, for sad but true, it is he who has to suffer as the result thereof, and not you.

Third: Carelessness in treatment opens up a large field for argument. Every man has his own peculiar ideas as to the management and treatment of a case, in view of the fact we have so few specific remedies. Yet there are many measures and means at our command today on which all logical men agree. These methods are to some men in my own personal experience unheard of, but more frequently, I am glad to say, untried, because they fail to believe the efficiency that is claimed for them. This would not be the case, however, with any one if only they would subscribe to a few standard journals, and thus devote a little time to reading and study, thereby improving their efficiency for work, which would eventually and unquestionably make them careful doctors. There are physicians whom I know to be good, square men, who today are treating fevers with that deadly drug called acetanilid. Frequently do I have requests that I give some of that medicine like Dr. So and So uses, that will surely sweat you and knock the fever out. To all such men present I beg you in the light of our present knowledge to be more careful and discon-

tinue such procedure, for it is an accepted fact, and that without question, that such treatment is wrong and indeed dangerous.

The idea of treatment opens up to my mind the thousands of poor women today suffering from torn perineums, as a result of careless treatment. When God made woman, her great function in this life was that she should become a mother. So when there comes a time when there is but little general sickness, we may always expect to be summoned to a case of confinement. It is a sad fact, but nevertheless true, that the laity are very ignorant on the subject of obstetrics. They feel that when they have engaged the services of a physician to be present at confinement, and the physician so does his part of the work that the mother and baby are living, he is a great doctor, for he has done a wonderful trick. They think it is wonderful, for the doctor who is careless makes them think nobody but he could have done so well. Frequently it would be better that such a man was never called, for many are that type of physicians who are today wrecking the happiness of the homes of people who never really know the cause thereof. What I mean is, they are making poor nervous, wretched, miserable, suffering mothers and wives, and this we all know blots out the sunshine in any home, for what is more to the happiness of the home than the mother? Without going into the matter as to how we are to be careful in this line of work, with which I feel you are all familiar, I beg you in the name of personal duty, and for the sake of mothers and wives, sisters and daughters, to be more careful in the procedure of delivery at childbirth.

Upon thinking further of the idea of careless work in connection with treatment, the management of acute contagious diseases occurs to my mind as one of the most important, to which I should call your attention. Do not carelessly go into such diseases as scarlet fever, diphtheria, smallpox, etc., without due precaution, for here the laity are careful and will watch the doctor's management of same. Upon the announcement of any of the above in the neighborhood, great alarm and excitement goes forth immediately. Endeavor to teach people as to how these epidemics are controlled, and I am sure they will always be careful if only they see you, too, are careful. This brings to my mind the

necessity for vaccination. In my experience with the Norfolk County Board of Health, in outbreaks of smallpox, the hardest fight I have had is to vaccinate the people. The cause of this has always been, and that without exception so far as I know, careless vaccinations previously done. They often tell me they had rather have smallpox than to have such an arm as So and So had after he was vaccinated. Upon looking into the case of Mr. So and So's trouble at vaccination, I find it was not from vaccination at all, but rather an infection due to careless work, in this simple procedure, yet dangerous, if not carefully done. In some instances I have had to have people arrested to get them vaccinated. Why? Because the people are scared as the result of careless work that had before been done, thinking vaccination a dangerous thing; and really they are right, for personally, I myself had rather take chances with smallpox than with some arms I have seen as the result of so-called vaccination. This, gentlemen, is making it hard to carry into effect the laws of Virginia relative to vaccination before entering school, and this is one of my reasons for calling your attention to such a small matter, yet by carelessness in this we are a menace to public health and the general welfare of the people.

Trusting these remarks that have occurred to me along the line of careless work as I have seen it in my own experience may cause us all to be true, honest, square and careful physicians, I leave the question for further consideration a personal matter with you, for, indeed, I am assured that as such men there awaits for us "A crown of life eternal in the heavens not made with hands."

ACUTE ARTICULAR RHEUMATISM.*

By JOHN W. WINSTON, M. D., Norfolk, Va.

Definition.—An acute general disease characterized by inflammation of one or more joints generally larger ones—but also attacking muscle groups, tendon sheaths, and serous surfaces (pleural and pericardial). It was once supposed to be due entirely to lactic acid in the blood, but now in many cases recognized as a distinct infection, and proven by cultures made from joint serum and blood. Any attack marked

*Read before the Section on Practice of Medicine of the Norfolk County Medical Society, at Norfolk, November, 1912. For discussion, see page 436.

by great inflammation, high fever and disturbed heart should call for blood cultures.

Frequency.—It is of common occurrence and has a strong tendency to recur, but the severity of the disease has been lessened by modern treatment.

Etiology.—Temperature, age, heredity, impairment of general health play a part. Poynton-Paine bacillus in animal inoculation according to them, but others have not proven this to be true. Streptococcus and bacillus of Achalmé show relation to other diseases that are certainly due to infections. Thus it is quite natural to think that articular rheumatism owes its origin to an infection, whereas, formerly, it was thought to be due to refrigeration; no one longer doubts that we are dealing with an infection, and cold is only predisposing.

The appearance of some of the after local conditions is without doubt due to infection, and is of great importance in the etiology. Lately the appearance of acute articular rheumatism has been often noticed in Germany to simulate infection. Rheumatism following scarlet fever, "scarlatinal rheumatism," has the greatest similarity to acute articular rheumatism in so far that it may be caused to rapidly disappear by treatment with salicylates. Different bacteria have been found in the cadaver, especially in the endocardial proliferations and in the synovial membranes of inflamed joints.

Bäumler—in dead body—in only very rare cases in the blood, very rarely in the synovial fluid. Staphylococcus albus and citreus and by some French authors bacilli were found.

The benign character of the inflammation in acute articular rheumatism as compared with infections from these bacteria ordinarily permits the view that they depend upon the action of bacteria with an attenuated virulence; they belong to the group of septic diseases, but it would represent a benign form of the same.

That the condition is due to a bacterial affection is, therefore, very probable, even if the strict proof of this assertion is not yet at hand. The frequent appearance of this affection in connection with angina, in which various bacteria play a prominent role, appears to support this view. Similar to the oral and pharyngeal cavity, any other part of the body that is in connection with the external air, the skin, urogenital apparatus or intestines, might form the

port of entrance for the virus. Simultaneous appearance of the inflammation in many joints would point to the fact that for a longer period numerous bacteria had been circulating in the blood stream and had reached the synovial membranes of the joints and had been deposited there. In other forms of articular rheumatism, which ought to be looked upon as metastatic, as in pyæmia, gonorrhœa, etc., and in which one or only a few joints at the time are affected, these inflammations would be due to a sudden immigration of the bacteria from a primary bacterial focus to the joint in question.

"The appearance of a multiple joint inflammation by attacks in the course of acute articular rheumatism, the frequent relapses in the disease after they have apparently run their course, might be explained in an analogous manner to that of other bacterial infections, that either from a focus of accumulation, in which, above all, an increase of bacteria occurs, a transference into the circulation takes place from time to time; or also that gradually in the course of the disease, by the production of bacteriæcidal or so-called antibodies, the pathogenic agent and its direct action becomes weakened and destroyed; that, however, the combat between these various forces remains undecided for some time, first favoring one and then the other, before a conclusion is reached."

It might be believed that the decisive action of salicylic acid is one of the most certain proofs of the infectious nature of acute articular rheumatism, as salicylic is certainly a very decided antiseptic; but as sodium salicylate is more often used with the same effect, it must therefore depend upon other than antibacterial action as sodium salicylate is only feebly antiseptic.

Even though the actual cause of acute articular rheumatism is not yet sufficiently known to us, still we recognize quite a number of predisposing causes, such as cold. This is favored by the circumstance that the disease, which is distributed over the whole earth, occurs with special frequency in such countries and districts in which cold, as the result of climatic conditions, occurs, especially readily, as, for example, in Great Britain; and in these countries the seasons in which chilling occurs most frequently are especially causative, therefore, winter and spring. In Freiburg, from 1877 to 1891, the maximum number of cases were admitted in

April. In both local and seasonal distribution an epidemic increase of frequency, limited to localized areas, even to individual dwellings, may occur, and that the most varied factors may have an influence only requires to be mentioned. Nothing positive in this respect has yet been determined.

Individual predisposition plays a certain role through heredity, but a much greater part is played by age. Pale and chlorotic individuals with angina are much more susceptible than healthy persons. An increased predisposition remains after an attack of acute articular rheumatism; also in cases in which no cardiac change has taken place. In certain anomalies of metabolism which go hand in hand with this disease, there is a certain tendency to acute articular rheumatism, so that mixed forms between it and true gout occur. "Erythema multiforme, erythema nodosum, and a form of purpura hemorrhagica, described as peliosis rheumatica, are but skin infected forms of rheumatism."

It must be remembered that articular inflammations may be due to other causes, as tubercular, syphilitic, and gonorrhœal, where it is generally limited to one or two joints or tendon sheaths.

By some a mono-articular form of this disease is assumed, but it is very probable that an inflammation limited to a single joint is for the most part due to other causes.

Arthritis deformans is a disease affecting the smaller joints usually, and with deformity and loss of motor power that is progressive—caused by the formation of periarticular osseous nodules. This pathologic condition, to my mind, is but the result of chronic stimulation to bone formation by some low grade of infection other than the streptococcus, nature having prevented destruction of the bone by over-production of osteoblasts. In other words, it is the result of an articular rheumatism of mild type, where the infection was not in the joint, but in the inner lining of the synovial membrane articulations of the bone.

An acute articular rheumatism preceded by chills and high fever, with great distention of the joint, is surgical and not medical. In all such cases serum should be taken from the joint under the most careful aseptic precau-

tions and a culture made. This procedure is best done in a hospital, as no precaution can be too great. In most of these cases the streptococcus will be found, in which case the serum should be drawn off and a mixture of sterile glycerine with four per cent. of formalin injected. The next day the serum should again be drawn off and the same injection made. (Murphy.) This procedure is generally sufficient if done at once. Delay or any other treatment of a streptococcus infection will result in a destruction of the joint, leaving a condition that by no known means can ever again be made normal.

Acute articular rheumatism is always a metastatic infection, with a primary focus of infection somewhere in the body that may have even been forgotten. This primary focus is always somewhere, and it is important to locate, for it is just such hidden foci that give us recurrences. The tonsils come first in importance. Other points are the pharynx, skin, intestines, uro-genital tract, the gums around teeth (as in Riggs's disease), chronic abscess of a tooth, an infection of the nasal cavity, a maxillary sinus, an old otitis media, and enlarged glands chronically infected.

As stated above, the streptococcus is found within the joint, while many other organisms may be deposited in the end of bones and the outer linings of the joint. In many instances cultures from around the joint will show the organism at fault. Cultures taken from the blood will, when taken with great care, frequently show the organism at fault, but not always, and this does not prove the absence of infection when not found. It is not improbable that often very much attenuated organisms are given off in small particles of tissue, and stop by embolic occlusion of the small vessels around a joint, and there, under depressed conditions of the part (exposure or injury), overcome the resistance formed by the body and cause trouble until the tissues again overpower them.

Streptococcus, typhoid, influenza, the micrococcus of rheumatism of Paine and Poynton, and gonococcus are the organisms generally at fault. "Never drain a joint with a tube, as synovial endothelium exposed to the air is destroyed." (Murphy.)

COMPLICATIONS OF ACUTE RHEUMATISM.*

By WM. P. McDOWELL, M. D., Norfolk, Va.

There are few diseases which run a more variable course and present more serious complications or sequelae than acute rheumatism.

We may best consider the various complications under the following classifications: Those connected with the cardio-vascular system, those of the nervous system, those of the respiratory system, and those connected with the cutaneous system.

Of these complications I wish to call more especial attention to those of the cardio-vascular, respiratory and nervous systems. Of the various complications, those met with in connection with the heart are most important, and their frequent occurrence makes acute rheumatism one of the most formidable diseases which we are called upon to treat.

These cardiac manifestations may occur where the articular symptoms are very mild and in some cases the joint lesions may be entirely absent. The chief lesions of this organ are endocarditis and pericarditis, either of which may be met with singly, but in almost all severe cases the endocardium, pericardium and myocardium may all be affected, and to this condition the term carditis has been given.

Endocarditis is the most frequent of all the heart complications. Of the 889 cases reported by Church, 494 had signs of old or recent involvement of the endocardium. The liability diminishes as old age advances, occurring more frequently in childhood. It was present in 61.1 per cent. of all cases reported by West, in 66 per cent. of Fuller's cases and in 80 per cent. of the cases reported by Cadet de Gassicourt. It increases directly with the number of attacks; of 116 cases reported by Stephen Mackenzie, 58.1 per cent. occurred with the first, 63 per cent. in the second, and 71 per cent. in the third attack.

It frequently occurs with mild arthritis, so mild that the joint lesions are overlooked until valvular disease of considerable severity has developed. Sometimes there may be only high fever with severe constitutional symptoms of an indefinite character, but no arthritis, and no suspicion that the attack is rheumatic until endocarditis is discovered.

It is usually the left side of the heart that shows the most marked changes, giving rise to mitral or aortic involvement, though in childhood it is a not uncommon thing to find the tricuspid also involved. The first result of either lesion is regurgitation. The mitral lesion shows itself by a soft systolic murmur, most marked at the apex and traceable to the axilla. In some cases there is a prolongation of the first sound before the bruit appears. When the aortic valve is the seat of the lesion we will find cardiac excitement, loss of the second sound, and the appearance of a soft diastolic, and sometimes also a transient systolic murmur.

Next to endocarditis, and often associated with it, pericarditis is another important complication. It, too, occurs more frequently in childhood than in adult. The most characteristic symptoms develop in the first week of the illness, but there is no period during the illness in which it may not be met with. The most characteristic form of the inflammatory process may be sub-acute, dry, fibrous form, often resulting in great thickening with extensive adhesions, and frequently in obliteration of the pericardial sac. How often do we see cases of arthritis, or even slight growing pains, which run a very mild course, and in a short time the child is apparently well, when suddenly there may be a rise of temperature, precordial pain and dyspnoea. On examination, the pulse will be found to be excited, and the tension low, and on auscultation precordial friction, usually detected in the first twenty-four hours, at the base of the heart and rapidly becoming audible over the entire cardiac area.

The distress in the adult is great and shows itself in the anxious face and orthopnea; on the other hand, some children show curiously little discomfort.

The occurrence of tonsillitis in acute rheumatism, either as an accompaniment or as a complication, has been remarked upon for a number of years, and so often are the two diseases associated that they have come to be looked upon as having a common origin. Many investigators are strongly suspicious of the tonsil as the chief channel of infection, as tonsillitis often ushers in an attack of rheumatic arthritis, and occasionally an attack of endocarditis without articular symptoms. Almost any form of the tonsillar involvement may be met with, but

*Read before the Section on Practice of Medicine of the Norfolk County Medical Society, at Norfolk, November, 1912. For discussion, see page 436.

it is the quinsy type that shows a closer relationship.

Other complications connected with the respiratory system, which should not be overlooked, are pleurisy and pneumonia. They are met with in a majority of the cases in which there is a severe pericarditis. The form of pneumonia usually met with is of the broncho-pneumonic type.

The relationship existing between rheumatism and chorea has been recognized since the days of Bright, and of recent years the connection between the two has attracted a great deal of attention. The English and French writers maintain the closeness of the connection. On the other hand, the German authors, as a rule, regard the connection as by no means very close. Some have found evidences of rheumatism associated with chorea in but a small proportion of cases—in not more than 5 or 10 per cent.—while others have placed it as high as 50 or 60 per cent. Of the 554 cases of chorea analyzed by Osler, he found 15.5 per cent. gave histories of rheumatism in the family. In 88 cases, 15.5 per cent., there was a history of articular swelling, either acute or subacute. In 33 cases there were pains, sometimes described as rheumatic, in various parts, but not associated with joint trouble. The statistics along this line are much smaller as given by neurologists than those given by the children's clinics and hospitals. The question hinges largely on what is to be admitted as evidence of rheumatism. If cases of acute articular inflammations only, then the number will be very small; while if we admit cases giving histories with other evidences of the rheumatic cycle, then the number will be very much increased.

We find two groups of cases in which rheumatic arthritis is present in chorea. In one the arthritis antedates by some months or years the onset of the chorea, and does not recur before or during the attack. In the other, the chorea sets in with or follows immediately upon the acute arthritis. In some instances it is impossible to decide whether the joint symptoms or the muscular movements have appeared first.

The exact connection between these two diseases is not fully understood, but some very interesting investigations and theories have been advanced which are worthy of notice. In 1899, Westphal, Wassermann, and Malkoff were able

to isolate from a fatal case of carditis and chorea in a girl a minute diplococcus which produced polyarthritis in a series of 80 rabbits. In 1900, Paine and Poynton observed remarkable twitching movements in a rabbit as a result of an intravenous inoculation of a diplococcus from a case of fatal rheumatism. Since that date similar movements have been observed in rabbits by Fritz Meyer, of Berlin, and Beattie, of Edinburg. In both instances they were the results of inoculations with a similar micro-organism. Still more recently Cole has noted involuntary movements from the injection of other streptococci. It cannot be pretended that chorea has been reproduced, for, in chorea, the involvement of the highest nervous centers—the intellectual and the emotional—stamps it as a human disease. Nevertheless, it is an interesting fact that such movements should have been produced by these inoculations, and that the micro-organisms have been demonstrated by Paine and Poynton in the pia mater and in the blood capillaries passing into the motor cortex of the animal brain.

According to Poynton, the explanation of rheumatic chorea that naturally suggests itself is that the micro-organism gains a foothold in the meninges of the brain, and probably also in the spinal cord, where, partly by poisons that are produced and partly by the local lesions, they give rise to the phenomena.

Of the complications associated with the cutaneous system, we may mention the various forms of erythema—an erythema marginatum and erythema papulatum. Erythema marginatum appears over the trunk and extremities in the forms of rings which are sometimes mistaken for ring-worms. The rings are pink and slightly raised, and encircle skin of a livid color. In size they vary considerably. There are but few symptoms accompanying this eruption, but there may be some local tingling and irritation.

Purpura is also sometimes seen during an attack of rheumatism and a scarlatiniform eruption has also been described.

407 *Taylor Building.*

The cholera situation in Constantinople and vicinity is reported as improving. Official reports have not been received with reference to the disease in the Turkish army, but statistics show 312 cases of cholera with 110 deaths in Constantinople for two weeks, November 5 19.

Proceedings of Societies, Etc.

NORFOLK COUNTY MEDICAL SOCIETY— SECTION ON PRACTICE OF MEDICINE.

Reported by FRANK H. HANCOCK, M. D.

Acute Articular Rheumatism

Was the subject for discussion at the November, 1912, meeting of this section, Dr. Charles R. Grandy, chairman, presiding. Papers were read by Drs. John W. Winston* and Wm. P. McDowell,† and discussed jointly.

DISCUSSION.

Dr. Lomax Gwathmey said that in this word "rheumatism" we have the remains of one of the oldest theories of medicine concerning morbid processes in the body. It shares with, if it does not antedate, the theory of the "humours," and was originally expressive of any group of symptoms that proceeded from the flow of spoiled fluids from the brain, and their later excretion through mucous membranes—catarrh—and was looked upon in antique medicine as the principal cause of disease.

Later this view concentrated itself upon more definite groups of diseases, and now, in our time, has become partial to morbid conditions characterized by pains, having a variable quality, that is, with or without symptoms of inflammation. The term, "rheumatism," is still applied to entirely different diseases with a vagueness that is remarkable, resisting as no other term has in our nomenclature scientific attempts to dissect it.

It remains for the careful physician, and a very careful one he must be, to arrange these determinable morbid conditions into their own pathologico-anatomical groups; and thus substitute for a vague designation a correct diagnosis with its appropriate terminology.

There is no doubt that certain definite phenomena follow prolonged exposure to cold and dampness, or sudden chilling, or *refrigeration*, of the body in some instances, as of hereditary tendency; and that such pain, and tenderness, and stiffness of groups of muscles, with resulting loss of motion, may be properly called "rheumatism"; but the indiscriminate bandying

of the term to cover dissociate diseases is really no longer permissible.

A man has constant pain in the bones of his leg, or his neck, his back, or his face, and is set indefinitely upon salicylates; or a severe ache in the knee and ankle joints, disappearing and returning as a neuralgia does, with, however, a conspicuous ataxic gait, the diagnosis is still "rheumatism." Is that consistent with the knowledge we have to-day of distinct morbid processes? Should not every physician recognize that the first is a syphilitic periostitis, yielding fabulously to salvarsan, and that the second is a *tabes dorsalis*, a disease of the spinal cord?

It is painful to state that such well-marked cases are often believed to be "chronic articular rheumatism," and the proper treatment is probably not instituted until gross macroscopic changes have ensued, rendering the conditions inmedicable.

Dr. Herbert Old discussed the similarity which acute articular rheumatism bears to infectious diseases, or diseases produced by the entrance of bacteria into the body. He said the kinship was too striking for the disease to be longer considered as in any way a prototype of a malady produced by *refrigeration*. This cooling process might be a predisposing factor, but there is no doubt that in acute articular rheumatism we are dealing with an acute infectious disease. The curves of the mortality statistics approximate nearly those of pyæmia, puerperal fever, and erysipelas, as recently shown by Osler.

In the peculiar character of the fever, the tendency to relapse, the joint involvement, the sweats, the leucocytosis, and the liability to endocarditis, the disease strikingly resembles pyæmia. Many different organisms in the past twenty years have been recovered from the fluid of the joints, and the blood, and when inoculated into animals, seem to cause a condition very similar to that of acute rheumatic fever, with arthritis, endocarditis, and sometimes even the fibrous nodules.

Poynton and Paine, Walker, and Beattie have done a great deal of this sort of work; and Cole, of the Johns Hopkins, in a series of cases produced, experimentally, with strains of streptococci, *endocarditis* and *arthritis*. There is a striking coincidence in the arthritic inflam-

*For paper, see page 431.

†For paper, see page 434.

mations produced by the various cocci, but there is scarcely any doubt that there is some difference in these joint changes, as mentioned by Beattie, and it is likely that they are all only factors in the secondary complications.

It may be that the actual agent of acute articular rheumatism is too closely identified with its human host to be successfully transferred to the lower animals, and will remain in such reciprocal relations until we have more definite knowledge of its morphologic* and cultural characteristics.

Acute articular rheumatism especially concerns the medical profession because, while the attack is nearly always transient, it fixes upon *the heart* with an obstinacy that is true of no other disease afflicting our species, indelibly injuring the organ and giving rise to most of the organic lesions of after-life.

The murmur, during the attack, is an anæmic one, due to the rapid diminution of the red blood cells. This prompt destruction of the red cells is responsible for the *dull white face* of the patient so typical of rheumatic fever.

We owe the development of the subject of rheumatic heart disorder to Bauilland, who, in 1832, uncovered the veil of this mystery. It was he who showed that *severe articular rheumatism* was constantly accompanied by *endocarditis* and *pericarditis*, and that the changes in those serous membranes was a permanent one. Of course, we must be on our guard against mistaking the anæmic murmurs so common in the course of rheumatism for the murmur of endocarditis. The violent invasion of acute articular rheumatism with its joint troubles may sometimes strikingly resemble a septic arthritis, and *vice versa*.

I saw a little girl not long ago in consultation that had a swollen and exceedingly painful ankle. She had high fever, was sweating some, and had an anæmic murmur. I did not get a history of tramma, but, as I recall, there had been exposure to a damp, chilly atmosphere, and there followed Dr. Gwathmey's classic *refrigeration*. I informed my medical friend that this was a case of acute articular rheumatism, and she was put upon the salicylates. The heart murmur was the principal inducement that led me to this diagnosis, because heart murmurs of this kind do not occur usually with septic arthritis. Well, in this case the in-

fection was streptococcic, and the ankle joint was nearly destroyed by the vehemence of the poison. Dr. Gwathmey later opened the joint and also the knee above it, which had become metastatically involved. There is now some hope that the child's life will be saved, and the joints restored to something like normal conditions.

Dr. S. W. Budd inclined to the opinion that the micrococcus rheumaticus—of Beattie presumably—is the causative agent, or seems to approximate more clearly upon inoculation, the changes characteristic of arthritic rheumatism. He mentioned the experiment of injecting ground-up tonsillar tissue into lower animals in cases of peri-tonsillar abscess with resulting arthritic inflammation.

Dr. Budd said the changes in the blood were of great importance. The hæmoglobin may fall very low, and with it, of course, the oxidizing power of the blood. The red blood cells sometimes go down to 3,000,000 per c.c.

Dr. J. W. Hunter believed that radiographs would often show pus pockets in cases of septic arthritis where the diagnosis was doubtful, and show it before destruction of the joint had occurred. Murphy has shown that it takes a very little while, indeed, for acute tension to destroy, or permanently injure, synovial membrane, and whatever is done to save the joint must be done quickly.

The chairman, Dr. Grandy, reminded the Section that the most distinguishing feature perhaps of arthritic rheumatism was its tendency to pass from one joint to another, often reappearing in a joint thought to be well, and sometimes becoming general, in the small joints of the spine, ribs and jaw, inflicting the most acute suffering upon the patient.

Section adjourned.

Analyses, Selections, Etc.

Hypotension—(Concluded).

Infections. 1. Tuberculosis. In uncomplicated, pulmonary tuberculosis the systolic pressure tends to fall and the diastolic pressure to remain stationary or to rise. Some authorities report the occurrence of hypotension in uninvolvement members of families with tuberculosis taint; and many others believe that a continuous

hypotension having no demonstrable cause, is an indication of existing tuberculosis, even in the absence of the usual physical signs (see essential hypotension). Continued hypotension never persists in the presence of evident improvement in the tubercular process. Reitter has suggested that its occurrence associated with evidence of nephritis is suggestive of renal tuberculosis. Sezary does not find any relation between the condition of the suprarenal glands and the low pressure found in tuberculosis. He believes that low tension is at first due to the direct effect of the action of the toxins of the tubercle bacillus, and that the suprarenals are involved later. He cites autopsies which showed almost complete destruction of these organs, and yet during life there was relatively high tension.

2. Typhoid fever is more frequently accompanied by hypotension than any other acute infection. Baruch summarizes the value and importance of the blood-pressure test in this disease as follows: (a) The pressure falls from the normal after the patient has taken to bed; and stays down until convalescence is established, when it returns to normal. (b) Typhoid fever is a disease with a blood-pressure below 100 mm. (c) The pressure is governed by factors of its own and bears no constant relation to pulse-rate or temperature. (d) In diagnosis, the blood-pressure may be of value in differentiating this disease from others, after we know the behavior of other diseases in this respect. In the diagnosis of the complications it has a value. (e) In prognosis, the blood-pressure chart is of value. A steadily falling pressure means great danger. As long as the blood-pressure keeps up to a reasonable level, we feel that there is a reserve power with which to work. (f) In the treatment of disease, the study of blood-pressure will probably be found of the greatest actual value by indicating the need for stimulation, etc.

3. Pneumonia. The pressure here depends upon the severity of the case and the degree of toxemia. Gibson says it offers a valuable aid in prognosis and a reliable guide in treatment. "When arterial pressure expressed in millimetres of mercury does not fall below the pulse-rate expressed in beats per minute, the fact may be taken as of excellent augury, while the converse is equally true."

4. Cholera has hypotension—always below 100. During the stage of collapse it is a very

valuable guide to the need of transfusion. The most satisfactory treatment, or the one most likely to combat complications, such as uremia, is the intravenous injection of a pint of 1 to 250,000 (equals 5mm. of a 1 to 1,000) solution of adrenalin. By this means the death-rate was reduced almost one-half.

5. Cerebrospinal Meningitis. In the acute stage and in cases presenting severe symptoms, blood-pressure is usually high; but low in mild cases and in convalescence. Sophian depends absolutely upon the sphygmomanometer as a guide to the value and safety of lumbar punctures and serum injections.

Other infections in which the pressure is usually low, are diphtheria, scarlet fever, measles and acute rheumatism.

Miscellaneous.—Hypotension usually exists in all wasting diseases and cachectic states, as general paresis and carcinoma. In these, it is a natural result of the gradual failure of function in the entire body, which includes a weakening muscular system, a gradually lowering vasomotor tone, and a diminution in the quantity and quality of the blood.

In diabetes, the pressure is usually subnormal unless complicated by nephritis and arteriosclerosis. In Addison's disease, it is extraordinarily low because of the destruction of the suprarenal glands. In epileptic coma it is always low, constituting a valuable differential sign between this condition and uremia.

The chief practical value of the sphygmomanometer is the valuable aid derived in differential diagnosis, prognosis and as a guide for treatment. It alone can give timely warning of the onset of hypotension accompanying vasomotor paralysis from shock or any other cause.

Effects and Danger of Hypotension.—The direct effects of a failing blood-pressure are the accumulation of an abnormal amount of blood in the veins and a lowering of the current in the arteries. This will affect the capillary circulation and interfere with nutritive and secretory processes. The most dangerous is its effect on the heart. Bishop says that low blood-pressure due to general prostration is not to be regarded as a disorder of the circulation except insofar as the circulation fails to respond to the demand made upon it. Thus, in shock, it is the nervous system that is at fault, not the circulatory apparatus. (F. A. Faught in the *Interstate Medical Journal*, Nov. 1912).

Treatment of Urinary Tract Infection by *B. Coli*.

Infection of the urinary tract by the bacillus coli is by no means rarely met with in clinical medicine and surgery, and, furthermore, it is a state which is met with both in the very young and the very old as well as in middle life. In some instances the symptoms are definitely associated with the urinary organs either because the patient suffers from pain or discomfort or because the presence of pus in the urine is manifest even to the naked eye. In other instances, however, distinct, localized urinary symptoms are absent and may be supplanted by other symptoms which do not seem to be connected with this portion of the body; and only after the urine has been centrifugalized and the deposit examined under the microscope is pus discovered, and the presence of the colon bacillus recognized. It is hardly necessary to add that before considering that the bacillary content of the urine is due to infection, every precaution be taken that the urine is not contaminated by the air, by the external genitals, or by its being received in a vessel which is not surgically clean.

The urinary symptoms vary materially. In some instances where the kidney is involved, the symptoms may be those of an intense, diffuse nephritis which may go on to the development of multiple small abscesses, the infection being unilateral or bilateral. In other instances, only the pelvis of the kidney is involved, so that a pyelitis is present, and this, again, may be unilateral or bilateral. When an acute nephritis is present, rigors, followed by sharp fever, often develop, and there may be signs of sepsis throughout the general system, with partial suppression of urine and a heavy cloud of albumen on boiling. In the cases in which there is pyelitis, with or without infection of the bladder, the symptoms are usually more moderate, but, nevertheless, the patient may be very ill. Casts and blood are rarely found, but albuminuria may be marked. As one would suppose, this form of the disease is rarely fatal. Then again, there are cases of chronic infection of the pelvis of the kidney, or of the bladder, in which the symptoms may be very mild, and at times quiescent, with outbreaks of fever and general wretchedness, leading to the supposition that there is a stone in the kidney or in the pelvis of that organ.

In examining the urine in cases of pyelitis and cystitis due to the colon bacillus, it is well to remember that although it may be cloudy and opaque it is usually acid and without odor. Its turbidity does not disappear on the addition of acid or on heating, and even filtering does not clarify it; but the centrifuge, as we have already said, may reveal pus cells and the bacilli. As pointed out by Mackey in the *British Medical Journal* of May 4, 1912, the colon bacillus may be so clumped as to cause the microscopist to report that there are masses of granular debris. The exact character of these masses can be determined by using the stains which are employed for the purpose of discovering this bacillus.

The treatment of these cases varies somewhat as to whether they are acute, subacute or chronic. Undoubtedly, a good many recover spontaneously, particularly if some other cause for the infection has existed, such as pregnancy or one of the acute, infectious diseases. With the termination of pregnancy, or of the acute illness, the vital resistance wins in the battle. So far as drugs are concerned, it is well to remember that those which render the urine alkaline are better than those which render it acid, and potassium citrate or bicarbonate may be used for this purpose. As a rule, the ordinary urinary antiseptics fail in colon infection of the genito-urinary tract. It is in this class of cases, however, whether they be acute or chronic, that vaccine therapy produces some of its most satisfactory results, either a stock or autogenous vaccine being employed. Where a stock vaccine fails, an autogenous vaccine should be resorted to. The injections are commonly given about twice a week, and the dosage should be ascending. Mackey starts with 50,000,000 and increases the dose by 50,000,000 at each administration until 600,000,000 are used. Indeed, the ultimate dose may amount to 1,500,000,000.

Concerning operative treatment, it is noteworthy that washing out the bladder does not seem to be very wise, since it often changes a pure infection of the bacillus coli into a mixed infection. Irrigation of the pelvis of the kidney is practically impossible for the majority. Where operative interference by the use of the knife is thought of, it is well to remember that pregnant women usually recover from this infection when the pregnancy is terminated, without operative interference; also, if the infection

be severe and involve both kidneys, it will do the patient no good and, indeed, much harm to diminish her eliminative powers one-half by extirpating one organ. If the ureteral catheter proves that only one kidney is involved, the infection is persistent, and the health of the patient is being undermined, the question of operative interference is, of course, to be considered. Finally, it is interesting to note that Mackey emphasizes in concluding his article, the fact to which we have already drawn attention—that infection of the urinary tract by the bacillus coli may present symptoms so little associated with this tract that they may be assigned to other causes. It is well, therefore, to bear this quiescent form of colon bacillus infection in mind.—(*Editorial, Therapeutic Gazette*, November, 1912.)

Illiteracy and the Negroes' Mortality.

Part of the theory of hygienic education is that it will decrease the morbidity of the community. A study of illiteracy in the United States does not serve to show that up to the present time the death rate has been markedly decreased while the illiteracy percentage is being lowered. If one considers particularly the mortality rate and illiteracy among the negroes, it becomes apparent that it is necessary to understand more fully the underlying cause of negro mortality before being able to accomplish much in reducing it. Needless to say, complete registration is the first essential. The bookkeeping of the negroes is of paramount importance. Only upon the basis of complete vital statistics is an analysis of their mortality rate comprehensible. Considering the death rate per thousand of population for the United States we find the following:

| | 1890 | 1900 |
|---------------------|------|------|
| White | 19.5 | 17.4 |
| Non-Caucasian | 34.4 | 34.2 |

The figures are unreliable, as few of the Southern States are included, and consequently so few blacks are enumerated that the figures possess little meaning. It is obvious that the mortality rate of the whites decreased slightly during this decade.

The figures for illiteracy of 18 Southern States, including the District of Columbia, according to the reports of the United States Com-

missioner of Education, 1911, volume 2, show the following:

| | 1900 | 1910 |
|-------------|-------|-------|
| White | 10.6% | 7.4% |
| Negro | 47.5% | 33.0% |

There is a very marked decrease in illiteracy, maintaining about the same proportions among the whites and blacks. While the illiteracy has decreased among the negroes there is considerable room for improvement.

Considering the proportion of each thousand deaths in the United States in the registration area, we learn that the negro mortality has decreased as compared with that of the whites:

Of each 1,000 deaths there were:

| | Average 1901-1905 Inclusive. | Average 1905-1908 Inclusive. |
|-------------|------------------------------------|------------------------------------|
| White | 931.4 | 932.7 |
| Negro | 66.2 | 63.8 |

If we consider the ratio that the whites and blacks form of the population and compare their mortality rate per thousand population, we ascertain that the mortality rate of the colored race is disproportionately high as compared with that of the whites and that their mortality decrease is disproportionately small as compared with their decrease in illiteracy.

Number of deaths from all causes, per one thousand population, in nine Northern cities.

| | % Population 1900. | 1901- 1905. | 1905- 1908. |
|---------------|-----------------------|----------------|----------------|
| White | 96.8 | 17.5 | 16.8 |
| Colored | 3.2 | 29.9 | 29.1 |

According to the census report for 1908, Maryland was the only Southern State presenting a fair set of vital statistics. Contemplating figures for rural Maryland for the years 1907-8, we learn with the figures available that the negroes, forming only 23.6 per cent. of the population in 1900, gave a death rate of 15.4 per 1,000 of population as compared with 11.7 in 1907 and 11.9 in 1908 for the whites.

This is highly significant of the fact that while the illiteracy rate has greatly decreased among the negroes, their mortality rate has remained practically constant in Maryland, while in the United States as a whole, owing probably to a lack of sufficient figures, their mortality rate has decreased slightly as compared with that of the whites.

It is essential for the welfare of both the whites and the blacks that further study be made of the exact causes of negro mortality in order that intelligent constructive features may be introduced into the States and cities with large colored population to secure a reduction of this wastage of the lives of the potential or active industrial workers. The personal benefits of educational advantages do not become manifest until after the fifth year of life. The poverty of negro parents has prevented most of them from carrying out the hygienic precepts they may have learned; ignorance has robbed many pickaninnies of proper care during early life. In consequence, no results in decreasing the mortality rate are apparent before the incidence of school life. A decrease of illiteracy among negroes has had but a slight influence upon the reduction of their mortality.—(*Editorial, Med. Review of Reviews*, November, 1912.)

Book Notices.

Practical Medicine Series. Under General Editorial Charge of GUSTAVUS P. HEAD, M. D., Professor Laryngology and Rhinology, Chicago Post-Graduate Medical School, and CHARLES L. MIX, A. M., M. D., Professor Physical Diagnosis, Northwestern University Medical School. Vol. V. 229 pages, \$1.25. Vol. VI. 350 pages, \$1.50. Vol. VII. 240 pages, \$1.25. Series 1912. Chicago. The Year Book Publishers. 12 mo. Series of 10 volumes per year, \$10.

Volume V., on *Obstetrics*, is edited by Joseph B. DeLee, A. M., M. D., and Herbert M. Stowe, M. D.; Volume VI., on *General Medicine*, by Frank Billings, M. S., M. D., and J. H. Salisbury, A. M., M. D., and Volume VII., on *Pediatrics and Orthopedic Surgery*, by Isaac A. Abt, M. D., and May Michael, M. D., and by John Ridlon, A. M., M. D., and Charles A. Parker, M. D. In this series the subjects considered are discussed through abstracts of articles appearing in various representative journals, and illustrations are reproduced when they would seem to add to the clearness of the articles abstracted. While intended primarily for the general practitioner as a gleaner of medical literature for the year previous to that of publication, the arrangement into several volumes enables the specialist to purchase only those in which he may be especially interested. They are an interesting addition to any doctor's library.

Pellagra. By STEWART R. ROBERTS, S. M., M. D., Associate Professor of Principles and Practice of Medicine, Atlanta College of Physicians and Surgeons; formerly Professor of Biology in Emory College, etc. 8 vo. 272 pages, with 89 special engravings and colored frontispiece. St. Louis: C. V. Mosby Co. 1912. Cloth. Price, \$2.50.

In this monograph, the history, distribution, diagnosis, prognosis, treatment, and, lastly, etiology—in other words, the disease in all its phases—are discussed from the standpoint, both of the student and practitioner. Pellagra seems to be an unknown quantity in many respects, and this is shown conclusively by the numerous views of leading investigators, which the author reviews while setting forth his own conclusions on the subject. Because of the gradual increasing frequency of pellagra in this country, the study of this protean disease is becoming more and more essential to the physician everywhere, and its presentation by Roberts is all that could be expected at this date.

Collected Papers by the Staff of St. Mary's Hospital (Mayo Clinic) for 1910, and 1911. 8vo. 633 and 603 pages, respectively. Illustrated. Philadelphia and London: W. B. Saunders Co. Cloth. Each volume, \$5.50 net.

These volumes contain reprints of the collected papers for the periods specified of the Staff of St. Mary's Hospital, and all have appeared in current medical literature. As the authors state, the present form of publication was originally adopted for their own convenience, and intended for private distribution. At the instance, however, of numerous members of the medical profession, it was later determined to place the volumes on the market. The many subjects treated are grouped under proper headings, and, with the addition of a detailed index, these compilations of papers by authors of note furnish an interesting and instructive addition to surgical literature.

Editorial.

High Cost of Living.

The most generally avowed object of strikes of different trades is an increase of pay. This is usually the chief so-called grievance, and often it is such. It is maintained and proven that the purchasing power of the dollar is much less now than several years ago; consequently, in

order to wear the same kind of clothes and eat the same kind of food, it now takes two dollars to do what one did before.

We sometimes hear and read it that the medical fraternity has the finest trust in the world—that “black-lists” are kept by societies, and people suffer for want of medical attention in consequence. This is not true, but were it a fact, there is ample precedence for it set up by the merchants and labor organizations themselves. No one need ever suffer for medical service on account of poverty alone. Our profession makes no boast of its charity work, and every doctor knows how much of this takes up his time, sympathy and means.

It seems that advances in all commodities has increased, as well as salaries in every line, both commercial and professional, except the medical. The only feasible way for the latter to get its fair share of increase is to charge more for the services rendered. There are several ways in which this can be done; for instance, demand more pay for night and Sunday work. The mechanic gets paid for this generally one and a half to twice as much per hour as day labor. Another excellent way is in treating a patient with diphtheria or typhoid fever, for instance, to charge a certain sum for the case, commensurate with the infectious risk, anxiety and responsibility. This is now usually done in confinement. It is not so much per visit, but a definite amount for the entire attendance. Surgeons practice and charge this way, so why not the internist? We should raise our rates, and thereby get our fair and just increase to meet the high cost of living. When complaint is made by the patient at the size of the bill and the difficulty of meeting it, an unanswerable argument is that the doctor has to pay just the same high prices as everybody else, and must have and is entitled to the same raise of income.

This is not commercialism for exploitation, nor curtailment of charity work, but a plain answer and partial solution to help the man who has so many burdens to bear, especially financial ones, each hour out of the twenty-four and each day out of the three hundred and sixty-five.

M. D. HOGE, JR.

The Medical Society of Northern Virginia and the District of Columbia.

The meeting of this Society in Washington, D. C., November 20, was an exceptionally fine

one in the point of attendance and the character of papers read and discussed. Several new members were received. Dr. Philip S. Roy, Washington, presided, and Dr. A. G. Coumbe, Vienna, Va., was at the secretary's desk.

Dr. Southgate Leigh, Norfolk, President of the Medical Society of Virginia, gave a talk on the organization of county societies, calling for better fraternal feeling, more social closeness, and stricter ethical treatment, with an appeal to the doctors of the State to assist him in making the meeting at Lynchburg next fall a banner meeting. The talk by Dr. A. Barnes Hooe, of Washington, on “Some European Observations” was one of unusual interest.

After a fine dinner served to the members at the Hotel Gordon, the Society adjourned to meet in Warrenton, Va., in May, 1913.

The Montgomery County (Va.) Medical Society

Met at Christiansburg, November 26, 1912. Quite a number of doctors were present, including Dr. Lawrence of Floyd Courthouse. In addition to the business before the society, a number of questions were discussed pertaining to the relation between the medical profession and the public. The society is co-operating with the State and sectional societies of Virginia, and is endeavoring in every way to keep pace with all advances in medicine. Though one of the youngest of the State's county societies, the good work accomplished shows the great interest manifested by the doctors of that section in their work, and we wish them continued success. Drs. H. D. Ribble, Blacksburg, and A. M. Showalter, Cambria, are the executive officers.

The South Piedmont (Va.) Medical Society

Met in Lynchburg, November 19, 1912, Dr. H. S. Belt, of South Boston, presiding, and Dr. George A. Stover, South Boston, in his usual place as secretary. A number of papers were read and the meeting was interesting and pleasant. A matter of especial interest to doctors throughout the State was the donation of \$100 to the Rawley W. Martin Memorial Association Fund by the Society in view of the high esteem in which this former beloved member was held.

The Present Status of Arsenic Therapy in Syphilis.

An article with the above caption was read

before the Richmond Academy of Medicine and Surgery, September 24, 1912, by Dr. Thomas W. Murrell, of this city. Unfortunately, the author, in handing his manuscript to the Acting Secretary of the meeting, failed to make note of his name anywhere on the paper, and, in transit to this office, the name of Dr. A. G. Brown was inadvertently inserted. The mistake was not discovered until Dr. Brown, who was ill at the time of publication, had convalesced sufficiently to return to his office, when he was bewildered to note that he had written the paper referred to. Convinced, however, that his memory had not failed him, he promptly disclaimed authorship. While we were puzzling over the situation, Dr. Murrell, who stated that his *Semi-Monthly* of that issue had been misplaced, had his attention directed to the matter, when he notified us that the article was his.

In an effort, therefore, to assist in rectifying the error, for which we were in nowise responsible, we are republishing the paper in pamphlet form as a *Supplement* to this issue.

The Medical Examining Board of Virginia

Will meet in Richmond, December 17-21, for the examination of applicants to practice the various branches of medicine and surgery in this State. It is not expected that more than thirty or forty applicants will appear before the Board at this session. Examinations will be held at the University College of Medicine. Dr. R. S. Martin, Stuart, is president of the Board, and Dr. Herbert Old, Norfolk, secretary.

The Clinical Congress of Surgeons of North America,

At their meeting in New York, the middle of November, selected Chicago for the next place of meeting, and elected the following officers for the ensuing year: President, Dr. George E. Brewer, New York; Vice-President, Dr. W. W. Chipman, Montreal; Secretary, Dr. Franklin H. Martin, Chicago, and Treasurer, Dr. Allen B. Kanshiel, Chicago. Dr. E. Willis Andrews, of Chicago, is chairman of the Committee of Arrangements for the next meeting.

The Congress in New York was one of the most remarkable medical meetings ever held in America, about 2,600 surgeons registering attendance and over 200 clinics being given one

day. The papers and addresses were read in the evenings. The surgeons in attendance represented nearly every State in the United States, Canada, and several European countries.

Public Health Bulletin No. 54,

On the Organization, Powers, and Duties of Health Authorities, by Assistant Surgeon General J. W. Kerr and A. A. Moll, A. B., gives an Analysis of the Laws and Regulations Relating Thereto in Force in the United States, and the various States of the Union. It is of general interest in addition to its value to health officers for the information it contains. The historical sketch with which the Bulletin starts shows that the first attempts at public health legislation in the United States were made in Virginia in 1639, although they were rather of a medical than of a sanitary character. Massachusetts was the first State to take definite steps in the direction of providing health organization by establishing boards of health for towns in 1797. The language of the statute then adopted was copied all over the land where the necessity for such bodies was recognized. Baltimore was the first city in which organized health work was first taken up, a health officer having been appointed there in 1793.

The Red Cross Christmas Seals

Are again being sold throughout Virginia and other States of the Union, the proceeds to be used in the fight against tuberculosis. In cities with local anti-tuberculosis leagues or those contemplating the formation of such leagues, the major portion of the amount made from these seals will be devoted to the work in those localities, with a certain proportion to go to the National and State anti-tuberculosis associations. Much good has been accomplished from the money raised from these sales in previous years, and it is hoped the sales will be much larger in all the States this year.

Dr. Jesse W. Willcox,

Of Carthage, N. C., has been appointed assistant physician to the North Carolina State Hospital for Tuberculosis, located at Montrose.

Dr. E. C. Levy,

Chief Health Officer of Richmond, has just returned from the National Housing Association, which he attended in Philadelphia during the first part of December.

Dr. J. H. Selby,

Who has been associated with the Radiographic Department of the Mayo Clinic for the past three years, is leaving Rochester, Minn., permanently, and will probably go abroad to take up special X-Ray work for an indefinite period.

Dr. Fenton B. Turck,

Formerly of Chicago, announces the removal of his office to 14 E. Fifty-third street, New York City. Dr. Turck is locating in New York as a director of a research laboratory founded to further the study of the cause and treatment of diseases of the digestive tract.

The Michigan State Board of Health,

At its last meeting, decided that gonorrhœa and syphilis should be placed on the list of diseases to be reported by physicians to the local health boards, and by the latter to the State Health Board. The patients need not be reported by name, but by office number or some other symbol. Ophthalmia neonatorum is to be reported by name together with other data.

Central State Hospital.

The forty-second annual report of this hospital for colored insane, located at Petersburg, Va., shows that of 1,939 patients in the hospital at some time during year ending September 30, 1912, 462 were either discharged or died. Dr. Drewry again urges in his report that insane patients should *not* be confined in jail or committed to the custody of police officers, pending their transfer to a hospital for the insane, except under unusual circumstances. Contract has been awarded for the construction of another wing to the building for criminal insane, to accommodate 20 additional patients, which will meet the present requirement of these classes.

The report shows that splendid work has been done in all departments.

Baker-Craig Sanatorium,

The private hospital of Drs. A. E. Baker and Lawrence R. Craig, of Charleston, S. C., was formally opened on November 28, when the public and profession were invited to inspect this hospital, excellent in all its details.

W. B. Saunders Company,

Medical publishers of Philadelphia, are now established in their new building on West Wash-

ington Square. All their departments are housed under one roof in this seven-story building, which is equipped with every modern aid for the manufacture and distribution of medical books and for the comfort and convenience of their employees.

A cordial invitation is extended the profession to inspect the new plant.

Transactions of the International Congress of Hygiene and Demography.

Subscriptions for these Transactions, which will be about 4,000 printed pages, should be sent at once to Dr. John S. Fulton, Secretary-General, New Jersey Avenue and B Street, N. W., Washington, D. C., as the number of copies issued will correspond with the number of advance subscriptions. The price is \$5 a set, delivered.

Drs. Lavinder and Lumsden Promoted.

Passed Assistant Surgeons Claude H. Lavinder and Leslie L. Lumsden, of the Public Health Service, both graduates of the University of Virginia and well known in this State, were among those promoted and commissioned surgeons in the Service, effective October 1, 1912.

Obituary Record.

Dr. Glasgow Armstrong.

As we go to press, we regret to learn of the death of this talented young doctor at his home in Staunton, Va., December 7th—the culmination of failing health for a couple of years. Dr. Armstrong was born in Salem, Va., thirty-eight years ago, and received his early education at Roanoke College and Washington and Lee University. After this, he studied medicine in New York, graduating from both the University of New York and the Medical Department of Cornell University. He served two years as interne at Bellevue Hospital, New York, and located in Staunton in 1901, where he had since practiced his profession. He was a member of various fraternal societies as well as of his State and local medical societies, in all of which he will be greatly missed. His wife and mother and father survive him.

THE Virginia Medical Semi-Monthly.

(FORMERLY VIRGINIA MEDICAL MONTHLY.)

Vol. 17, No. 18.
Whole No. 402

RICHMOND, VA., DECEMBER 27, 1912.

10 Cents a Copy.
\$2.00 a Year.

Original Communications.

TREATMENT OF FRACTURE OF THE SHAFT OF THE FEMUR.*

By A. R. SHANDS, M. D., Washington, D. C.
President American Orthopedic Association, etc.

I would feel like offering an apology for bringing to your attention a subject that has been so much written about and discussed of late years but for the fact that it is very evident, judging from the number of short limbs that are seen from time to time, we have not yet arrived at perfection in the treatment of every case of this very serious accident. It is my intention in this brief paper to illustrate this subject by a clinical report of a few typical cases that have come under my care, and in so doing it is proposed to emphasize some of the most important points in the management of this fracture that are not fully realized by many men who undertake the great responsibility of treating such cases. This, I think, is largely due to the fact that the older text-books practically taught that it was to be expected that a person with a fractured femur would recover with a somewhat shortened limb, and that the most important point in the treatment was to use the best methods to reduce the shortening to a minimum. In my opinion this is all wrong, for with proper care but very few cases should recover with such a result.

The chief object to be aimed at in assuming the responsibility of treating a fractured femur is to prevent shortening; hence, the method that can give the greatest number of such results in a given number of cases, sufficiently large to be of value, is the method worthy of universal acceptance, provided, however, that it is one that is practical in the hands of the average surgeon. It is not my purpose to give you a lengthy discourse on the subject, nor to criticise any of the

various procedures in vogue, but to speak briefly of the method that I have been using for the past eighteen years in every suitable case, feeling fully justified in so doing by the very satisfactory results that I have obtained.

It is well recognized by all surgeons who have had experience in treating this fracture that muscular spasm is the chief factor to be overcome. It is muscular spasm that is responsible for the displacement of the fragments of the broken bone and for the distortion of the limb. The difficulty experienced in reducing this fracture is due entirely to the resistance of the muscles that have been thrown into a state of spastic contraction on account of the disturbance of the reflex nerves. It should be realized fully that the muscles attached to the femur are the most powerful muscles in the body, and that it requires a great deal of force to overcome the spasm of them sufficiently to allow the fragments to be brought into proper relation with each other. The principle involved in the different methods of treatment is exactly the same, viz.: to overcome the muscle spasm by traction, to replace the broken fragments in the best possible position for repair, and to hold them there until firm union has taken place.

The method that I have adopted for producing traction in reducing a fracture of the femur is either by manual force, or a mechanical appliance, with the patient under influence of ether, and at the same time to reduce the fracture by manipulation alone, or by manipulation and operative interference combined, if necessary, and while the traction is kept up to apply a snugly fitting plaster-of-Paris spica extended from the nipples to the toes. When this is properly done, you will have perfect immobilization and constant traction, instead of intermittent traction as is the case with the weight and pulley that is in such common use. After the limb has been put up in this spica, a post-operative X-ray picture

*Read before the forty-third annual meeting of the Medical Society of Virginia, at Norfolk, October 22-25, 1912.

should be taken when possible to show whether a proper reduction has been accomplished. When the X-ray shows that a proper reduction does not exist, then I operate through a proper incision and, after having accomplished a satisfactory reduction, I anchor the fragments by whatever means is best suited to the individual case. I do not mean to say by any means that all fractured femurs should be operated on in the sense of cutting down on them, but what I wish to emphasize is that when a proper reduction cannot be done without it, and when the fractured bones will not remain in satisfactory apposition when reduced, due to the obliquity of the fracture, or to the intervention of soft tissue, then and then only should operation be done. I have recently had a case of non-union of the ulna caused by a muscle having been forced between the ends of the bone.

One should never be satisfied until he is sure that the fragments are in satisfactory apposition; when this has been done there should be no fear that the result is not going to be satisfactory if his plaster-of-Paris spica is snugly applied as described. If this were done in every case of fracture of the shaft of the femur, there would be no more short limbs from this accident.

ment of the fracture of the shaft of the femur may be divided into three classes as follows:

First.—Those that can be satisfactorily reduced without a cutting operation.

Second.—Those that have to be reduced by a cutting operation, but can be held in position by locking the jagged edges of the fragments.

Third.—Those that have to be operated on to be reduced and at the same time have to have the



Case I.—Photo. No. 2. Taken two years after the accident. Limbs equal in length.

fragments held in position by a spike, wire, or plate.

The following two cases are typical examples of the first class:

Case I.—Child, five and one-half years old, came under care three days after having sustained a fracture of the middle third of the femur. (See X-ray No. 1). The following day I reduced the fracture under ether anesthesia with my traction apparatus and, while traction was continued, I applied a plaster-of-Paris spica, extending it from the nipples to the toes, moulding it well over all bony prominences; that is to say, over the malleoli, knee, and pelvis, which produced practically perfect immobilization of the entire limb. The following day



Case I.—Photo. No. 1. Taken the day before the fracture was reduced.

For convenience of description the treat-

a post-operative X-ray was taken which showed the fragments of bone to be in a satisfactory position. Three days later the child was taken



Case II.—Photo. No. 3.

from the hospital to his home with perfect comfort. The plaster-of-Paris was left on for full six weeks at which time the union was found to



Case II.—Photo. No. 4.

be solid enough to dispense with any form of splint. The final result was perfect in every respect. (See X-ray No. 2).

Case II.—Child, five years old, came under my care within a few hours of the accident.

Diagnosis: Fracture of the femur at the junction of the middle and lower third. (See X-ray No. 3). This fracture was reduced by manual force on the second day after the accident under ether anesthesia and limb put up in a plaster-of-Paris spica extended from the nipples to the toes. The following day a post-operative X-ray showed that the fragments were in a



Case III.—Photo. No. 5.

perfectly satisfactory position (See X-ray No. 4); hence nothing more was done. Within one week after the spica was applied this little boy could walk all around the room, in fact he went all over the hospital, as he was a great favorite with the nurses, without disturbing the position of the fractured bone. The result in this case was absolutely perfect.

The following two cases are reported as typical examples of the second class:

Case III.—Male, aged eight years, came under my care the day of the accident.

Diagnosis: Fracture of the middle third, with about two inches of overlapping of the fragments. (See X-ray No. 5).

An earnest effort was made to reduce this fracture without operating, but as the displacement recurred each time the traction was let up,

any patient I have ever had, which confirms my belief that this is an ideal way to treat fractured femurs. X-ray No. 6 was taken seven weeks after the operation.

Case. IV.—Male, aged twenty-seven years. This patient was an unusually well-developed man over six feet tall.

Diagnosis: Fracture of the middle third of the femur, with full two inches of overlap- (See X-ray No. 7). This patient came under my care about four weeks after the accident. On January 4, 1912, I cut down on the fracture and had very little trouble in prizing the fragments back into perfectly satisfactory position while strong traction by the traction machine was maintained. The wound was closed without drainage and a plaster-of-Paris spica applied in the usual way. This operation was done very quickly, twenty minutes being the time consumed. A post-operative X-ray taken on the



Case III.—Photo. No. 6. Taken seven weeks after the fracture was reduced.

I cut down on the fracture through a three-inch incision which enabled me to prize the fragments in position, and, as the jagged edges held the position when the traction was let up, the wound was closed without drainage and a plaster-of-Paris spica was applied. The skin was about the only tissue cut, the muscles being split with a blunt dissector. It was then discovered that the jagged edges had prevented me from reducing the fracture and, when it was reduced, these jagged edges obviated the necessity of any suture being used.

This boy was taken from the hospital on the third day; a perfect result followed. This patient was so very comfortable during his convalescence that it was almost impossible to keep him in bed. In less than two weeks after the accident I found him out in the back playing with his companions, he having stolen out of the house during his mother's absence. This youngster had the most ideal convalescence of



Case IV.—Photo. No. 7. Taken four weeks after the accident.

third day after the operation showed the fragments to be in a perfectly satisfactory position. (See X-ray No. 8). The result in this case was perfect in every particular.

The following case is a typical example of the third division:

Case V.—Male, aged sixteen years. This patient came under my care the day of the accident.



Case IV.—Photo. No. 8. Taken three days after the operation.

Diagnosis: Fracture of the middle third of the femur, with about three inches of overlapping. (See X-ray No. 9). On the second day after the accident I operated on him in the usual way. Several days later a post-operative X-ray showed that the fragments had slipped, hence a second operation was done and the fragments wired with one piece of wire. See X-ray No. 10).

This is the only case I have ever had in which the fragments have slipped after reducing them as they did in this case. The only explanation I can offer is that in all probability the traction was relaxed in some way while I was applying the plaster-of-Paris. It may have been due to the obliquity of the line of fracture. The final result in the case has been all that could be desired.

It is the universal custom among orthopedic surgeons to use the plaster-of-Paris spica in correcting the distortions of the hip and knee.

There is nothing in the whole range of orthopedic surgery that has given me more satisfaction than has been obtained by this procedure. I have done sub-trochanteric osteotomies for the correction of hip deformities in patients ranging in age from six to forty-three years, and have had their femurs immobilized by means of the plaster-of-Paris spica. My success in this operation as well as in the supra-condyloid osteotomies for the correction of knock-knees, convinced me that the same method of treating accidental osteotomies of the femur was the best, in my hands at least.

When a patient with a fractured femur has his limb encased in a plaster-of-Paris spica as described above, he is far more comfortable than in any extension and traction apparatus I have ever seen used. In cases of children, they can



Case V.—Photo. No. 9.

be up and about the house within a few days with no risk whatever of doing harm. In cases of adults, they can be easily lifted out of bed and put on a rolling chair and carried out of doors. Occasionally adults complain of tightness on account of flatulence, and lack of chest expansion. This can be very easily remedied by remov-

ing the plaster-of-Paris over the chest and abdomen in the following manner:—cut through the plaster after it has hardened well, which will occur in about twenty-four hours, in a line from the middle of the axilla to the anterior spinous process of the ilium, thence across the abdomen to the corresponding points. If the cast is extend-



Case V.—Photo. No. 10. Taken after the second operation.

ed well over the pubic bone and made quite thick at this point, say one-half of an inch, there will be a strip four or five inches wide which will prevent the sides from spreading, at the same time will hold the limb perfectly firm, and give abundant room for chest and abdominal expansion.

901 Sixteenth Street, N. W.

CLASSIFICATION OF NERVOUS REACTIONS.

By THEODORE HOUGH, Ph. D., University, Va.
Professor of Physiology, University of Virginia.

It is the function of the central nervous system to evoke in the body co-ordinated reactions which place the organism in proper relation to the external or internal conditions which call them forth. A cinder in the eye produces a wink and a flow of tears; an increase of carbon

dioxid tension in the blood augments the ventilation of the lungs; a series of sounds forming a question and thus producing a state of consciousness calls forth a more complicated reaction which we speak of as an answer. The wink is usually called a *reflex*; the response of the respiratory center an *automatic*; the answer given to a question a *volitional* action; and the impression is often left with students that all nervous reactions fall under one of these three heads. Doubtless definitions could be so framed as to make this true; but a little consideration will show that such definitions would hardly coincide with common usage of the terms in question.

A reflex act is one evoked by the more or less direct action of afferent upon efferent neurones and without any causative intervention of consciousness or the will. The so-called "reflex arc" is universally defined as consisting of an afferent fiber which within the center connects with efferent fibers, so that impulses passing in over the former excite the latter to activity. It is by this mechanism and by this alone that the reflex act, as such, is executed. The afferent impulse may, in addition to exciting the efferent fibers in question, pass to the brain and render the subject conscious of the stimulus; but this state of consciousness is an accompaniment of the motor reaction, often follows the efferent discharge, and in no case stands in causal relation to it. As such, the conception of a reflex is perfectly definite and reflex actions, as thus defined, would form one group in any system of classification of nervous actions.

The automatic action is not so easy to define. Its most typical example is that of the respiratory center. While the efferent cells of this center may be influenced reflexly, it is well established that, even when cut off from all connection with afferent nerves, the center continues to discharge rhythmic impulses to the muscles of respiration. The strength of these impulses is increased by an increase in the arterial blood of carbon dioxid or of the metabolites of working muscles, or by a rise of temperature of the blood; they may even cease altogether in the absence of some of these conditions (apnea); but it seems that the rhythmic discharges from the center must be regarded as primarily the result of events in the cells themselves. Some condition, physical or chemical or both, gathers head, as it were, within the cell and finally over-

flows in a nervous discharge, after which the continued action of the same condition again gathers the necessary head and a second discharge follows. The familiar illustration of a constant current of air blown through a tube under water issuing as an intermittent series of bubbles makes real to us the conception of a steady metabolic process in the cell leading to an intermittent discharge of energy. The automatic action thus differs from the reflex in the absence of a stimulating afferent nerve fiber; it resembles the reflex in that it stands in no causal relation to consciousness or the will.

The volitional action is a perfectly well defined conception even though we can make no pretence even of hypothesis as to the mechanism in which it originates. It is an act which is preceded by a conscious intention to perform that act. Like the reflex, it may be called forth by an afferent impulse; but between the arrival of this impulse and the efferent cortical discharge there intervenes that state of consciousness which we describe as conscious intention, and this *seems*, at any rate, to bear a causal relation to the efferent discharge.

There is, however, a very important group of nervous actions which does not come under the terms of any of the above definitions. They involve afferent impulses, they generally, if not always involve, as a causative factor, the nervous process involved in a state of consciousness; but the efferent discharge is not preceded by the intention to perform the act; indeed, this act is frequently one of which we are not conscious at all. Numerous examples may be cited. When a hungry dog is teased with the sight of food, the cerebral events which accompany and follow the sensations of smell and sight result in the "psychic" secretion of the gastric juice. Experiments leave little doubt that consciousness is a necessary link in this nervous arc (for no gastric juice is secreted in a sleeping animal when food is brought near the nose), and the efferent discharge over the vagi nerves results in some way from these cerebral events. When a cat whose stomach is executing the regular movements of digestion becomes angry, the movements are at once inhibited by efferent discharges over the splanchnic nerves; the effect of sexual excitement upon the organs of reproduction, or of emotions upon the blood supply to the face (pallor or blushing) or upon the bladder in the involuntary micturition of fear or excitement,

are familiar examples which occur to any one. Such actions are not reflex in the sense defined above, for they involve the co-operation of a conscious state and seem to result from an efferent discharge produced by the cerebral events accompanying that state; on the other hand they are not volitional in that there is no intention of producing the result which is actually accomplished by the efferent discharge; and, of course, they are not automatic since they result from the stimulation of afferent nerves.

With regard to the physiology of these nervous actions, the following statements may be made. Some of them, like the micturition of excitement and possibly blushing, may be simply the result of more or less general irradiation of excitatory processes from a strongly stimulated cerebrum. This is, of course, suggested by the fact that other functions than the one mentioned often share in the excitation. The recent studies of Cannon, Hoskins, and others bring us the very important suggestion that many of these general stimulations which result from emotional states may be effected through the agency of the adrenals. The discharge of adrenalin by this gland was shown by Dreyer (and his work has been amply confirmed by others) to be under the control of the nervous system through certain fibers of the splanchnic nerve. The adrenalin, added in this way to the circulating blood, excites the endings of the post-ganglionic neurones of the sympathetic system, thus producing increased vaso-motor tone, erection of hairs, inhibition of movements of the stomach and intestine, secretion of perspiration, according to the special function mediated in each organ by these fibers. What would at first sight appear to be a case of general excitation of numerous nerve centers may well be, in the light of experimental findings, the result of a discharge from the central nervous system over a single path—that to the adrenals—and the widespread reaction at the periphery would become an example of the widespread reaction of adrenalin upon peripheral structures. It is also possible that other internal secretions may similarly act as the agents of the central nervous system in producing more or less definite simultaneous reactions in a number of organs.

Allowing, then, that some of these non-volitional actions resulting from conscious states are only parts of a condition of general excitation, there still remain others which involve very

definite nervous paths into and out of the cerebrum, and which result in actions which are pre-eminently adaptive in character. Of these no better example can be chosen than the secretion of the gastric juice. This secretion is initiated by stimuli connected with the act of taking food into the mouth, but this act involves afferent stimulation through two very different channels; on the one hand that of taste and smell, and on the other that of sight. The first of these channels is found to be the more reliable method of stimulation; it almost always evokes a flow of gastric juice through impulses over the vagi, although even here it is found (Pawlow) that the greater the relish with which the food is eaten (i. e., the larger the part played by cerebral processes), the more abundant is the secretion. At the same time similar secretory impulses over the vagus are discharged in response to the stimulation of sight alone, as, for example, when a dog sees the food within a glass box. This so-called "psychic" secretion cannot, however, always be elicited. Sometimes the experiment is successful, sometimes it is not. It is more apt to occur if the animal is hungry, and especially if he sees the food about the regular time of feeding. It seems to require the presence of a certain complex of conscious states as a link in the chain of nervous events.

Pawlow has published the results of most instructive experiments on the closely related case of salivary secretion. Here again a sapid substance in the mouth almost unfailingly excites a secretion of saliva, and this seems to be a reflex in the sense defined above. On the other hand the mouth may "water at the sight of food", but this by no means invariably occurs. Pawlow suggests for the reflex described in the above definition the term "unconditioned"; for an action such as the "psychic" secretion of saliva or gastric juice the term "conditioned" reflex. He thereby expresses the idea that the nervous processes which result in the mouth watering at the sight of food depend on a certain state of consciousness whose occurrence is *conditioned* on what is taking place in the cerebrum at the time. It is this form of reaction which seems not to be included in the common meaning of any of the terms, automatic, reflex, or volitional, for the true reflex does not involve consciousness.

Pawlow has furthermore shown experimen-

tally how such conditioned reflex mechanisms may arise. Every time a dog was fed, a piece of ice was held on a certain part of the skin. The sensory stimulus of cold from this cutaneous area came in the course of a few days or weeks to be so associated with the activity of the salivary center that a secretion of saliva could be obtained by applying ice to this area of skin apart from the taking of food. In the case of another dog the taking of food was similarly associated with sounding a note of a certain pitch on the violin, until the sounding of this note alone would cause a flow of saliva, although a note of different pitch failed to do so. Other striking examples of the acquisition of such conditioned reflexes could be cited. They all suggest that when two nerve centers are simultaneously excited by the same stimulus, but each over its special afferent channel, the simultaneous activity of the two centers blazes a path of conduction between them. In the case in point, the secretion of saliva, which could at first be produced only through the unconditioned reflex path from the mouth, can now be evoked through the more roundabout channel of the conditioned reflex path through cerebral centers of temperature or sound sensations. The mouth waters at the sight of food because, along with the stimulation of taste and smell there has necessarily occurred an associated excitation of the cerebral visual centers, and this has made a conditioned reflex path between these and the salivary center. Because of the existence of this path the secretion of saliva or of gastric juice can be excited through sight alone whenever other cerebral events permit the appropriate activity of the visual centers. The nervous mechanism thus acquired is, because of its manner of origin, both adaptive and useful.

The application of these facts is obviously far-reaching. Not only may useful adaptive mechanisms be thus acquired, but, as in the case of Pawlow's experiments, useless ones as well; nay, the associations thus established may be actually harmful, giving rise to disordered conditions of the nervous system and through this of any organ under its control. The application to the whole subject of "mind cures" and "faith healing" is also too obvious to need more than mere mention.

My only purpose in developing this line of thought is to support the suggestion that it

would be a pedagogical gain to make clear to students beginning the study of the physiology of the nervous system the distinction between these four kinds of nervous reactions. The common system of classification is incomplete, as definitions are usually given and understood; and it would be a distinct advantage to fix in the student's mind the mechanism of the acquisition of conditional reflexes. Nervous actions would then fall under the four classes of automatic, unconditioned reflexes, conditioned reflexes, and volitional actions.

SOME FACTORS OF SAFETY IN OPERATIONS FOR TUMORS.*

By J. SHELTON HORSLEY, M. D., Richmond, Va.

The rapid increase of tumors in recent years, and particularly of malignant tumors, is most striking. Statistics show that approximately one out of every seven individuals who attain the age of forty years dies from cancer or sarcoma. The three main factors to which we can look for a reduction of this mortality are, prophylaxis, an early diagnosis, and proper treatment. In the matter of prophylaxis much has been said and unquestionably something can be accomplished along this line. Dr. G. P. LaRoque, of Richmond, has written very ably upon preventive surgery and also takes up this subject as regards cancer. We cannot expect the same results here from prophylaxis as where the causes and conditions surrounding the development of the disease can be more definitely approached. The impossibility of repairing every slight tear in the cervix, or of detecting small fissures in the nipple, or cracks in the lip or tongue are some of the difficulties that surround prophylaxis. Early diagnosis and treatment go hand in hand, for a comparatively slight operation with an early diagnosis gives very much more chance for immediate and permanent cure than the most radical operation carried out in a brilliant manner when the disease is further advanced. It is needless to expect any considerable proportion of permanent cures when the diagnosis is delayed until it is plain to every one. As Bloodgood has so frequently said, the earlier the diagnosis in cancer, the more difficult it is, but the more important for the patient.

It is hard to explain the attitude of those who

delay the diagnosis of cancer in order to "clear it up." If some one was bleeding to death from a wound in the wrist, the medical attendant would hardly wait until he could definitely ascertain whether the hemorrhage came from the radial artery or the ulnar artery or from some of its branches before checking the bleeding; and yet this is just the attitude of the doctor who waits till the diagnosis in cancer is absolutely certain. The only difference is that in the former case hemorrhage takes life more quickly, whereas in cancer it is a slower process. Death is just as certain in the one instance as in the other. The physician who watches a lump in the breast to see what "it is going to do" and to have his diagnosis "thoroughly established," by which time the patient will very likely be inoperable, is to my mind as culpable as the doctor who permits his patient to bleed to death because he cannot quite decide just which artery is bleeding. In each instance valuable time is being lost. In each instance the patient is being brought nearer and nearer to his death because of the delay.

The chief factor of safety, then, in operations for tumors is an early diagnosis. In making a diagnosis the general facts must be taken into consideration, such as the age of the patient, the location of the growth, the rapidity of the growth, and the *absence of pain*. It must be particularly borne in mind that cancer never causes pain in the early stages; this symptom is one of the terminal symptoms just as dropsy is a terminal symptom of some forms of nephritis. The limitation of motion, the absence of pain, the presence of a lump, however small, and the age of the patient, are the points that should be gone over most carefully. It is well to remember that when we cut through healthy tissues in order to reach a tumor for microscopic section, we are practically inoculating the tumor cells in a freshly cut tissue and thereby hastening metastases. The lymphatics take up the cells and in a few hours carry them beyond the reach of the surgeon's knife. It is doubtful if any case of cancer of the breast which has been cut into for diagnosis, and the operation done a few days later, has ever been permanently cured. If, however, operation is performed immediately after an exploring incision, the danger of metastases is very slight, as is usually takes several hours to carry the cancer cells beyond the region of the incision.

*Read before the forty-third annual meeting of the Medical Society of Virginia, at Norfolk, October 22-25, 1912.

We must frankly face the situation, and in spite of prejudice to the contrary, we have to acknowledge that the only satisfactory cure in the vast majority of cancers is an operation. In some instances, where the cancer is superficial and not on the mucous membrane, X-ray or a paste may be justifiable. While we do not know the exact origin of cancer, we must recall that we do not know the exact origin of any living tissue. The development of the embryo is as profound a mystery as it ever was, though much light has been thrown upon its histology. No one can tell why a grain of wheat sprouts and grows. Yet while we do not know why the original cancer cell begins any more than we know why a grain of corn sprouts, we do know that there are certain conditions which favor its growth and that the tumor is composed of individual cells just as an army is made up of individual soldiers. The method that eradicates all of these cells in one mass is usually the most satisfactory. Operations upon cancer are essentially different from operations for other conditions in that they involve some knowledge of the character of the tissue as well as of the technic of the operation itself. The time when a surgeon ridiculed the necessity of a knowledge of anatomy has happily passed just as a mechanic would certainly be condemned if he did not know the construction of an automobile that he was repairing. The surgeon who attempts to repair the human body should be acquainted with its anatomical structure, else he is unduly timid on the one hand or unnecessarily rash on the other. The knowledge of pathology is becoming as much one of the modern requisites in operations for cancer as a knowledge of anatomy is in any operation, and it is more and more necessary that the surgeon shall not only study the malignant tissue on the table, but follow it out under the microscope and be able to associate the microscopical appearance with his gross findings. Then, when he cuts into suspicious tissue, he can usually tell by his past experience from the gross appearance what is the nature of the tissue upon which he is operating. In other words, he should carry his pathology in his own head and fingers and not in those of some one else. When doubtful, he should have access to frozen sections in a laboratory adjacent to the operating room, where not only a pathologist, but he himself can look over the tissue and clear up the case entirely. Such an

arrangement must appeal to the cool judgment of the profession as being the ideal which will secure in the end the greatest number of permanent cures and the smallest death rate from malignant tumors.

The principle of taking out the tissue in one mass and not cutting it out in pieces is a most important one and is too frequently overlooked. About the face there are very few lymphatic glands and the lymphatic channels absorb quickly. There is not the same necessity for continuous dissection here as in other regions. In the breast the lymphatic channels are more easily blocked and metastases are more likely to occur in the fascia along the pectoral muscles. Heidenhain found lymphatic channels in the substance of the large pectoral muscle blocked with cancer cells. Because these cells cannot be seen with the naked eye, it is all the more important that the tissue should be removed with every possible care to take it out in one mass, avoiding handling the cancerous mass roughly. In many instances it is wise to block the lymphatics after the operation by wiping the wound with some strong antiseptic solution, such as carbolic acid followed by alcohol or Harrington's solution. This not only tends to block the lymphatics but will destroy a certain amount of tissue left behind and will make the local conditions unfavorable for the implantation of cancer cells. If it is not deemed wise to use a strong antiseptic, the wound at least should be flushed out with salt solution which is non-irritating but which may wash away any loose cancerous cells that are left behind.

Many cancer cases reach the surgeon either in an inoperable condition or on the border line. When there are metastases clearly out of reach of surgery, an operation is useless and only brings discredit. On the other hand, when we cannot reasonably demonstrate the metastases beyond the reach of surgery, it is the duty of the surgeon to give the patient his one chance by doing as radical an operation as possible. The mortality in such procedures will necessarily be high, but with careful work a small proportion of these patients can be saved, which is infinitely better than permitting all to die.

Transfusion of blood is a modern method which increases the safety of desperate cases but is very rarely applicable to operations for cancer. As Crile has said, it is unfortunate that cachexia and lymphatic involvement were ever

noted as symptoms of cancer, for patients with these symptoms present little hope of permanent cure by any operation. Occasionally, however, loss of blood may be the most prominent feature of the cancer, and in such instances transfusion would undoubtedly be beneficial. It must be remembered that in the early stages of cancer hemolysis is apt to occur. Crile has shown this as one of the early diagnostic symptoms. In such a stage the transfusion of blood would be dangerous, but after the disease has progressed hemolysis with normal blood seems to disappear. In other words, if transfusion is necessary, it would be less dangerous in moderately advanced cases than in early cases. Suturing of arteries has a very definite place in operations for malignant tumors. Occasionally a malignant tumor is closely adherent to the wall of a large artery or vein, as the axillary or femoral, and for this reason only is pronounced inoperable. If the surgeon can suture arteries successfully, it is entirely feasible and proper to resect the adherent portion of the artery and suture its ends together. If the section removed is too long to admit of easy approximation of the arterial ends, a segment of vein can be interposed. The technic of this procedure has been described in the *Journal of the American Medical Association*, July 6, 1912, in an article entitled, "A New Method of Suturing Blood-Vessels." An important change in technic since the publication of this article is that I now use the cobbler's stitch, or double mattress suture, instead of the single mattress suture.

A knowledge of pathology will not only save mistakes in permitting the operator to carry out a more perfect technic in recognizing the tissue and removing it in one mass as extensively as possible, but will, on the other hand, check unnecessary mutilation. In most cases of cancer of the penis, the growth is of a squamous variety and begins on the prepuce. A rather extensive circumcision, if done early in such cases, would be just as satisfactory so far as a permanent cure is concerned as amputation of the penis. Many tumors of the bone are either bone cysts or giant cell sarcoma. Local treatment in such instances will give as sufficient a guarantee of permanent cure as amputation would.

In summing up some of the factors for safety in tumor surgery, one of the most important is that the surgeon himself should have a knowledge of tumor pathology in his own head and

fingers instead of being solely dependent upon some one else. This will enable him not only to deal more satisfactorily in radical cases, but will often save unnecessary mutilation. Secondly, early diagnosis by the attending physician is exceedingly important. The earlier the diagnosis is made the more difficult it is, but he who delays a suspected cancer case to be sure of a diagnosis is just as culpable as the physician who delays checking a hemorrhage in order to see just what vessel is bleeding. It may be that in the future there will be some serum treatment, but so far it has been unsatisfactory, and operation offers the only chance of cure in the vast majority of malignant tumors.

THE CAUSES AND FREQUENCY OF OCCIPITO-POSTERIOR CASES.*

By THOMAS D. JONES, M. D., Richmond, Va.

Demonstrator of Obstetrics and Instructor of Principles of Surgery, Medical College of Virginia.

Causes.—The most frequent cause of this condition, according to most authorities, is incomplete flexion of the head, and my own observations along this line, which embrace the study of nine hundred and ten cases of labor, occurring in the practices of Drs. Anderson, Baughman and myself, show the existence of this condition, in a large majority of our occipito-posterior cases. The predominance of this one causative factor is perhaps the most important point to be mentioned in connection with this part of our symposium, as a recognition of this fact is of the greatest importance in the management of these cases.

A large majority of pelvic abnormalities on the part of the mother, and abnormal conditions on the part of the child, to be mentioned in connection with the causes of this condition, are those which would tend to interfere with flexion of the head, whereby some other part of the head, such as the forehead, first meeting the resistance of the pelvic floor, is then deflected anteriorly, throwing the occiput into the hollow of the sacrum.

Among causes on the part of the child, all of which interfere with flexion of the head, are abnormally large head (observed in nine per cent of our series of cases); abnormally small head (observed in three per cent of our cases);

*Read before the forty-third annual meeting of the Medical Society of Virginia, at Norfolk, October 22-25, 1912, as a part of the Symposium on Occipito-Posterior Cases.

prolapse of a hand or foot; coiling of the cord about the neck; tumors of the head, and congenital goitre.

Among the causative factors on the part of the mother are old, neglected lacerations of the perineum (observed in six per cent of this series); abnormally large pelves (three per cent of this series); pelvic deformities developing from rickets (three per cent); deformities developing from tuberculosis of the lower vertebrae (three per cent); contracted pelves; inertia of uterus and abdominal muscles, and tumors of the pelvic organs.

Frequency.—The frequency of occipito-posterior cases at the beginning of labor is variously estimated by authorities on the subject at from 20 to 30 per cent of all vertex cases; but under favorable conditions, which are found to exist in the majority of cases, the occiput is rotated anteriorly, and the birth of the child is accomplished without any unusual difficulty. So that the frequency of persistent occipito-posterior cases is the thing that concerns us most, and I find that authorities are at considerable variance as to the frequency of this type. Naegele gives 1.3 per cent; Varnier 2 per cent; West 3 per cent.; Edgar 4.04 per cent., and Williams as high as 8.79 per cent. We find that it existed in 3 per cent. of our nine hundred and ten cases. However, putting the frequency as low as 1.3 per cent. in a condition so troublesome to the obstetrician, and so perilous to the mother and child, it behooves us to put forth our very best efforts in working out the causes and best methods of treatment.

1119 Decatur Street.

TREATMENT OF OCCIPITO-POSTERIOR CASES.*

By M. L. ANDERSON, M. D., Richmond, Va.
Lecturer on Obstetrics, Medical College of Virginia.

In speaking of the treatment of occipito-posterior presentation, we find that, in our series of 910 cases, about 90 per cent of them terminate in spontaneous anterior rotation—either around the pelvic brim as it descends into the pelvis, or on the pelvic floor.

It is when *this* fails that it becomes necessary to resort to operative measures for the relief of the suffering woman, and the preservation of the child's life.

*Read before the forty-third annual meeting of the Medical Society of Virginia, at Norfolk, October 22-25, 1912, as a part of the Symposium on Occipito-Posterior Cases.

With reference to the *prophylactic* treatment of these cases, I can say very little, my experience having been entirely confined to the active or operative treatment, the diagnosis having been made after the beginning of labor. This treatment, in my opinion, offers very little, for the reason that we are usually unable to correct the anatomical cause of the condition, found in the fœtus, pelvis or maternal soft parts.

Postural treatment has been recommended by some able obstetricians, but with varying and doubtful results.

My practical experience in the treatment of occipito-posterior cases, has (as I have mentioned before) been entirely operative.

In these instances, the natural forces have failed, and the interests of fœtus and mother demand intervention. There are three classes into which these cases may be divided, namely: At the Superior Strait; In the Mid-Strait; In the Inferior Strait.

In any of these operations, the patient should be anesthetized, and placed across the bed, buttocks drawn to the edge and limbs securely supported by a Kelly strap. The vulva, inner surface of the thighs; and buttocks must be washed with green soap and sterile water, followed by an application of equal parts of tincture of iodine and alcohol. The vagina and cervix should then be well dilated with a sterile hand, preferably encased in sterile rubber gloves.

At the Superior Strait.—If the bag of waters has not ruptured, and other conditions are favorable, a podalic version should be done. If this in contra-indicated, the obstetrician should pass one hand into the uterus, posteriorly, and gently rotate the occiput around the pelvic brim to an anterior position. It is now necessary to rotate the shoulders to the opposite pelvic diameter—from the one in which they were engaged—to prevent the head returning to its original position.

If flexion is not complete, the head should be flexed by pressure, with the fingers, on the fœtal forehead. During this manipulation, the uterus should be firmly held down by an assistant, or with the free hand of the operator, to prevent the possible tearing of the uterus from its vaginal attachments. After the anterior rotation, it is advisable to apply high forceps, and deliver as quickly as is practicable, for the reason that this manipulation interferes with

the foetal circulation to such an extent that the mortality is high if delivery be delayed.

At the Mid-Strait.—Failure of anterior rotation, at this point, is often due to incomplete flexion of the head and insufficient resistance of the posterior segment of the pelvic floor. The occiput should be rotated anteriorly around the side of the pelvic cavity by placing the hand posterior to the occiput and making gentle, but firm, pressure in an anterior direction, at the same time drawing the occiput down, in order to maintain the proper amount of flexion. I have had babies born spontaneously, with a few uterine contractions, after this rotation.

Should this manœuvre fail, a forcep blade, or vectis, can be used to great advantage to assist in rotation. But I prefer applying the forceps at the sides of the pelvis, using them to rotate the occiput to an anterior position, then changing to the cephalic application of the forceps, I deliver the child from the anterior position.

In the Inferior Strait.—My experience with this class of cases has been more frequent than with any other. At this point the engaging diameter of the foetus is in the antero-posterior diameter of the pelvic outlet, and anterior rotation of the occiput is more difficult than at the mid-strait—for the reason, that the occiput has to rotate around the pelvic floor, a distance of 90 degrees, without any rotation of the shoulders, and progress is usually delayed.

If the pelvic floor be relaxed, and should there be a roomy pelvis,—or, in multiparae, with old pelvic lacerations,—and impaction has not occurred, the forceps should be applied, and the occiput delivered posteriorly over the perineum. Otherwise, the forceps should be applied, and the occiput rotated on the pelvic floor, and delivered anteriorly. By this procedure, the infant mortality is lessened, and there is less laceration of the pelvic floor.

If impaction has occurred, in which case, the shoulders have descended into the pelvis, and the cervico-bregmatic diameter plus the dorso-sternal is engaging the outlet, a craniotomy must be done.

928 West Grace Street.

Dr. Carl Alsberg has been appointed chief of the Bureau of Chemistry, to succeed Dr. Harvey W. Wiley. The new appointee was formerly a chemist in the Agricultural Department.

ERRORS IN THE DIAGNOSIS AND TREATMENT OF ARTERIOSCLEROTIC ANTECEDENTS.

By TOM A. WILLIAMS, MB, CM. Edin., Washington, D. C.

Corresp. Memb. Soc. of Neurol. and Psychol. of Paris; Neurologist to Epiphany Free Dispensary, etc.

I. TOO READY DIAGNOSIS OF A PSYCHOSIS.

Although the nervous symptoms of arteriosclerosis are well-known and even the warnings of its onset are often described, yet the antecedent condition is frequently overlooked on account of the unfortunate readiness of a diagnosis of hysteria, neuropathy, nervousness, melancholia, break-down or other vaguely conceived conditions. Besides, the early symptoms are far from pathognomonic, and to a person unversed in psychopathology they are easily confused with a psychogenetic disorder. This is especially the case when, as frequently occurs, they vary from day to day, and especially when the variation appears to correspond with apparent causes of depression and excitement. The physician is often too apt to accept without analysis the statements of the friends regarding the connection of cause and effect respecting this. The following case, which I have already reported, illustrates the avoidance of this fallacy:

Case 1.—A physician of 68 was referred by Dr. A. E. Balloch, after a year's grief and worry. He slept badly, had paresthesiae in his hands, feet, and hearing organs. He took narcotics in increasing amounts. He lost weight and power of endurance. His optimism was replaced by dullness or distress by turns, and he wept much over his griefs. No objective changes of reactions of nervous system were revealed by examination. The tension was 160 mm. Sclerogenetic toxicosis was diagnosed from the matutinal nature of the insomnia, the paresthesiae without sensory changes and the loss of endurance. A diet low in proteins and purins led to disappearance of unpleasant symptoms. He remains well three years later.

II. VARIABILITY BY PSYCHIC INFLUENCES.

A further cause of the error of interpreting as psychogenetic, cerebral symptoms due to chronic vascular disorder is their frequent amenability to psychotherapy for a time at least. A depression or a vagary often disappears for a time as a result of the stimulus of medical ex-

*The author's method and treatment and model diet described in this Journal October, 1911.

hortation. Therapeutic success is not uniform; but failure in a particular case is apt to be attributed by the physician to his own lack of psychotherapeutic skill; so that he continues to persist in his erroneous diagnosis of a psychosis in spite of the failure of what he believes to be correct treatment.

Case 2.—An illustration of the liability to this error on the part of friends and even of the physician is the case of a well-known financier referred to me by Dr. Z. Sowers. In this case, there were severe periodic attacks of depression during the whole life of the patient, and their resemblance to melancholia masked the diagnosis. For instance, the patient believed that all his friends knew that he was down and out. He had ideas of reference regarding his financial affairs and he thought he would have to leave his family in poverty. Ideas of self-depreciation about his ability and acts made him miserable. On examination, I found the speech slow and slurring, reflexes normal, the heart beat was heavy, slow, and the second beat was accentuated. The systolic blood pressure was 190, and the diastolic 130. The urine was normal. I found that his consumption of protein was most excessive; but he had ceased smoking some weeks before.

With appropriate treatment the systolic blood pressure became 157 and the diastolic blood pressure 85. He recommended business, became cheerful and perhaps even too optimistic, so much so that his retirement for treatment has been thought wise. Although certainly of cyclothymic constitution, this patient had his condition much aggravated by the excess of pressor substances in his blood, formation of which was soon prevented by proper diet which had never been prescribed during numerous peregrinations to various health resorts.

III. ERROR OF INCOMPLETE TREATMENT.*

Case 3.—An illustration of the need of more radical treatment in some cases is the case of a Congressman, aged 57, referred to me March 19, 1912, by a well-known Washington physician. His complaint was dizziness and trembling on walking. However, these symptoms had first occurred on his graduation, and again fifteen years before I saw him. On each occasion he recovered by means of physical labor on a farm. They have occurred from time to time since.

Being advised that they might be due to an error of refraction, he saw Dr. Wilmer, who gave him prism exercises without benefit. The vertigo so alarmed him that he never went out unaccompanied.

Intercostal neuralgia had troubled him, especially when tired; and troublesome constipation caused him to take purgatives daily. The physician who sent him to me had recommended a course of baths, but these did not remove the symptoms, which, however, were always relieved by a hot bath and by whiskey. He was a very hearty eater and an excessive smoker.

Examination showed only some exaggeration of the deep reflexes, failure of the right plantar, abdominal and cremasteric cutaneous reflexes. The motility was normal except for a slight lack of firmness in the gait. Sensibility was normal, and the pupils reacted and converged well. The heart sounds were clear, the second being somewhat accentuated. The systolic blood pressure, which a year before had been 190, had been reduced, under the care of the physician who referred him, to 160 when I examined him. He exuded an unpleasant odor of sour tobacco. Physically, he felt dull, as a rule, but worried much and felt very restless at times, especially after exertion.

The diagnosis was toxicotic hypertension.

The prognosis was good.

The treatment consisted of the limitation of tobacco to three cigars a day, cure of the constipation by special diet, removal of the toxic condition by this special diet, aided by a course of baths to favor cutaneous action, and exercise in moderation to increase metabolism.

As a result, by April 18th the systolic blood pressure was 130, and he was rarely dizzy. A favorable result, however, caused him to exceed dietetically once or twice, so by April 25th several dizzy attacks had recurred. The blood pressure, however, was only 154 the day I saw him. The instructions were emphasized; so that by June 2nd the blood pressure was 122 and there had been no vertigo. On June 23d (blood pressure 124) constipation induced vertigo again, and it occurred on July 11th as a result of oversmoking (blood pressure 120).

His complexion had improved, his eye became clearer, the accentuation of the second cardiac sound had disappeared, and he was able to perform his duties like a normal person. He remains well November 1st.

*The author's method and treatment and model diet were described in this journal, October 1911.

IV. THE ERROR OF EXACTING TOO MUCH OF A PATIENT.

One hears of complaints of patients that a regime is a greater trouble than their disease. Many doctors complain too that patients will not follow instructions. The facts that these difficulties have not troubled me I attribute to the practice of utilizing the co-operation of the patient in planning the regime. He then becomes interested in carrying out that which he believes is his own arrangement and has a certain pride in doing well. In one of my cases this attitude of mind caused the patient to believe that I had played no part in his cure, and hence to be much offended when remuneration was demanded. The art which conceals art, while medically invaluable, left something to be desired in this case.

V. FUNCTIONAL MUST BE DISTINGUISHED FROM ORGANIC SYMPTOMS.

In appraising the cerebral symptoms, one of the difficulties and a frequent source of error is the distinction between symptoms and signs due to the effects of actual sclerosis of the vessels, and the symptoms and signs of the conditions which favor sclerosis, including the causes which produce hypertension within the vessels. A means of distinguishing between these two groups is afforded by the comparison of symptoms during and between periods of high blood pressure. The case of the Congressman just described clearly showed that his symptoms were not accounted for by sclerosis of vessels, for they disappeared when detoxication was produced by treatment. Furthermore, any considerable degree of sclerosis of vessels supplying the central system leads to loss of function of a portion of the white and gray matter, usually ascertainable clinically by quantitative methods of examination of the reflexes, cerebellar function, motility, sensibility, intelligence and effectivity.

VI. ERROR OF ATTRIBUTING EFFECTS OF TOXIGENETIC DISORDER TO OTHER ORGANIC DISEASE PRESENT.

Case 4.—A most instructive case was one in which, although syphilis of thirty years standing had produced the lightning pains of tabes for eleven years, yet no relief had been obtained by thorough specific treatment. The patient had visited Hot Springs on nine different occasions, and had several inunction courses with-

out benefit. He had taken as much as 450 grams of potassium iodide per day for weeks at a time, and recently had been given salvarsan in New York, which only aggravated the pains; so that for a month he had been unable to work and had not slept without narcotics. There had been doubts concerning the diagnosis. Several Washington physicians called the condition rheumatism; Dr. Osler had thought it neuritis before he left Baltimore. And later Dr. Thayer believed it was tabes. Increase of the pains had led the patient to New York, where he saw Dr. Dana, who also diagnosed tabes. Other neurologists dissented from this opinion.

There had been no disorder of miction, no visceral crises, unless a rectal ache upon two occasions was such. There had been no girdle sensation nor numbness, nor irritation of the nerves of special sense, no vertigo, nor nausea except what was provoked by medicines. There had been no diminution or excess of libido, nor any irritability of temper, and his general health had remained good in spite of the intensity of the pains. These occurred in crises, sometimes at an interval of months, sometimes as many as a hundred times a day.

He had never dissipated, but he took from three to fifteen drinks of whiskey a week, but no beer or other intoxicants. He smoked three pipes and a cigar or two, and drank one cup of strong coffee daily. He considered himself a small eater, but took fish and meat for breakfast, the usual dinner and a milk and biscuit lunch.

Examination.—The motility was normal, there being no trace of inco-ordination.

Reflexes.—The achilles were absent; the patellar needed reinforcement; those of the arms were active; the bulbo cavernosus was absent on the right, and diminished on the left. The abdominal were active, more especially the right, while the cremasteric was more active on the left. Of the plantar reflexes, the left showed the normal flexion as did the smaller toes of the right foot, but the right great toe extended slightly on stroking the sole. The vaso-motor reflexes were equal on the two sides; on the thigh, the right exceeded the left, while on the abdomen the response was less on the right side.

The pupils reacted fully to light, especially the left, which was oblate superiorly.

Sensibility. There were no paresthesiae. There was hypoaesthesia to pin prick of the left

chest and right thigh when tested against the left abdomen; also on the right side, in the 5th lumbar and 1st, 2d, 3d and 4th sacral regions—most in the 3d and 4th segments. On the left side, the diminution was similar, but was less so in the 1st and 2d sacral and 5th lumbar.

The sense of deep pain in the achilles tendon was delayed over 3 seconds, but *when felt, was intense*, much more so than normal.

The diapason was everywhere felt, and the sense of attitudes was unimpaired except perhaps in the right foot.

The Wassermann reaction was negative. The cerebro-spinal fluid contained 3.5 white cells per c. m. Of these, 70 per cent were lymphocytes, 29 per cent large mononuclears, half per cent were endothelial cells, and of the remainder none were plasma cells. The protein content was very slightly increased.

The systolic blood pressure was 170, the diastolic 95. The pressure was raised by pain and tenderness at once.

Diagnosis.—Without going into detail, two conditions were present in my opinion: one was tabes dorsalis of form fruste; the other was vascular hypertension. I reasoned that the toxicosis which elevated the blood pressure probably also aggravated the old lesions of the posterior spinal roots* and helped to produce the lightning pains. I did not believe that an active luetic radiculitis could be present then without a lymphocytosis greater than the $3\frac{1}{2}$ per c. m., which was all that we found. Besides, the clinical sign of delayed and aggravated sensibility to deep pain is one characteristic of an inflammation of nerve of toxic etiology, although it is unusual at least to find a delay so long as three seconds. In this case, the length of the delay might be attributed to the remains of the chronic radiculitis, specific in type.

Another interpretation is possible, viz., that the hypertension and the causes which lead to it interfered with the vascularity of the posterior roots so as to permit of their attack by the tabetogen through interference with this man's strong natural immunity. Whatever the explanation, the treatment which ignored the syphilis and was aimed at the toxicosis succeeded perfectly, so that the patient obtained a relief which has lasted now over five months.

The treatment employed was diminution of

the proteins to the Chittenden standard, 50 grams per day, and an abundance of saline and carbohydrates in the diet; the cessation of tobacco, alcohol and coffee; a daily sweat bath, followed by douches and massage; 30 grains of aspirin three times a day for three weeks. The pains began to diminish. On May 20th, the blood pressure was systolic 170, diastolic 120, a temporary rise not accounted for. June 1st, systolic 154, diastolic 95. Only one day of pain necessitating codeine had occurred up to this. June 8th, blood pressure was systolic 150, diastolic 100. Blood pressure now is systolic 170, diastolic 120. He weighs 206 pounds—that is a loss of 11 pounds—and feels perfectly well. The patient relapsed in November through failure to maintain a succulent diet. On this occasion compensation was less easy, but is now occurring.

It has been said that the recognizable symptoms of arteriosclerosis *show themselves only* when the disease can no longer be detected. It would be more accurate to say they are *not usually diagnosed* until too late for a return to normal. But that is just because of some of the prevalent errors which I have mentioned. It is in order to emphasize them that this paper is written.

1705 N Street.

Proceedings of Societies, Etc.

NORFOLK COUNTY MEDICAL SOCIETY— SECTION ON DISEASES OF CHILDREN AND OBSTETRICS.

Reported by FRANK H. HANCOCK, M. D.

Eclampsia

Was the subject for discussion at the November, 1912, meeting of this section, Dr. George T. Myers presiding. The leader of discussion was—

Dr. Julian L. Rawls, who said that, with the single exception of central placenta prævia, there is no obstetrical complication so disastrous to the expectant mother or her prospective offspring as that of eclampsia. Its frequency is variously estimated by different authors; Hirst says it occurs once in three hundred cases; Edrarr claims from two to four per cent., and Schanta states that it occurs in twenty-five per cent. in all cases of pregnancy. It is most fre-

*See Pathogenesis of Tabes Dorsalis, *Amer. Jour. Med. Sci.*, Aug. 1908.

quently seen in the primipara, and more frequently in women illegitimately pregnant. It occurs ten times as often in multiple pregnancies as in single.

As to the time during pregnancy at which it manifests itself, authorities differ; for instance, Hirst claims that it is seen most often during labor, next in frequency during pregnancy, and least often during the puerperium. Edgar, on the contrary, states that it occurs most often during the latter months of pregnancy, next during labor, and least often during the lying-in.

Etiology.—The condition seems to be due to a toxin generated by the foetus coupled with a renal inadequacy to throw off the toxin. These toxins are conveyed first to the liver where they are converted into substances fit for elimination by the kidneys. If the liver fails in its function, the maternal blood contains toxic material irritating to the kidneys, the central nervous system and the capillaries everywhere.

It appears that, even if the hepatic function is imperfectly performed, functionally active kidneys are competent to execute the imperfectly oxidized toxins. On the contrary, with impaired excretory power in the kidneys, **accumulative toxemia develops, ending in eclampsia.**

As to the actual cause of the convulsions, it would appear that the accumulated toxins are intensely irritating to the capillaries, that either in consequence of an acute increase of the pain—due to contraction of the capillaries—or to the direct irritation of the central nervous system, convulsions appear. The thyroid gland seems to be an important factor in furnishing an antibody for the toxins of pregnancy according to Nicholson. Hypertrophy and the hypersecretion of this gland acts as a safe-guard to the pregnant woman.

Symptoms.—Probably one of the most important is a rapidly increasing blood pressure, and a blood pressure that, in spite of treatment, has run up to 150 mm., and beyond, will generally justify a termination of the pregnancy. An albuminuria is always a danger sign and should cause us to take unusual care; the total quantity of the 24 hours urine should be obtained and its specific gravity. Either an abnormally low or high specific gravity is a cause for uneasiness. If low, it would indicate that the output of solids is diminished; if high, pro-

bably one of the types of nephritis. The kidneys themselves we have seen are usually not the guilty party, but they furnish an excellent check for our other clinical symptoms and should in no case be overlooked. Unless the urine is examined at stated intervals, the first symptoms to which our attention is likely to be called may be digestive disturbances, rapid pulse, headache, edema or disturbances of the vision. Often, however, we do not see the patient at all until the convulsive seizure or the deepening coma. It is well to remark, in passing, that in some cases of eclampsia, although the urine may be frequently examined, no renal inadequacy was shown until after the convulsion.

The convulsions of eclampsia must be distinguished from those of epilepsy, hysteria, brain disease, or a pure anemic condition, due to a previous intestinal nephritis. With the exception of the last, the blood pressure is not markedly raised, except in eclampsia.

Prognosis.—The maternal death-rate of eclampsia in private practice is about 30 per cent., the mortality for the child about 50 per cent.

Treatment.—Of course prophylaxis is the most important treatment. The urine should be examined frequently and the blood pressure taken; if either of them show cause for alarm, the patient should be put upon a restricted diet, which excludes red meats, eggs, fish, or the stronger nitrogenous vegetables; also, the supply of sodium chloride should be diminished, a daily purgative and both copious draughts of water and mild diuretics given. If, in spite of all of these, together with confinement to bed and at times an absolute milk diet, the blood pressure continues to rise, the albumin increases and the total quantity of urine decreases, labor should be induced.

If seen first during the convulsive stage or coma, the speaker's rule has always been to deliver immediately, followed by purgatives, profuse sweating, and sufficient morphia and chloral to control convulsions. If it becomes necessary to inject water into the subcutaneous cellular tissue or by the bowel, it is best not to use a salt solution on account of the harmful effect of sodium chloride on the kidney. Venesection may be of great value, and for that reason I always welcome a mild post-partem hemorrhage in eclampsia cases.

As to the anæsthetic used, ether is preferable to chloroform, as the prolonged administration of chloroform may produce the same degeneration of the liver as eclampsia.

Hirst states that any kind of accouchement force in a private house, by a general physician has a high mortality. The speaker said that in his very limited number of cases, this had not been his experience. He had never seen a maternal death follow dilatation and delivery either by high forceps or podalic version; on the contrary, he had known several cases in which both the mother and the baby were lost by the expectant treatment.

He believes that, given a primipara not in labor, with a rigid cervix, and in convulsions or coma, that an abdominal or original cæsarean section gives the best promise for the mother and the baby.

In the last six years he has seen eight cases of eclampsia delivered in convulsions, and eight cases in which labor was induced to prevent convulsions—in none was there a maternal death. In only one case was there a baby lost where the pregnancy was at term, and in that case the baby died twenty-four hours after delivery in convulsions.

It was contended by some of the members present that the use of morphine in eclampsia was undoubtedly contra-indicated, because it tended to dry up the secretions, and thus they did not approve of the suggestion of Dr. Rawls, who incorporated it among his other measures. Better use jaborandi, they said, to relieve the eliminative insufficiency, and thus remove the impending eclamptic attack; better energetically stimulate all five of the eliminative processes, better that than to cork them with morphine.

Dr. Rawles replied that Edgar mentions it among the first two or three remedies, and several obstetricians do, but that he did not doubt that chloroform, veratrum, and chloral were preferable.

The chairman, Dr. Myers, thought that eclampsia, acute yellow atrophy of the liver, and pernicious vomiting were the serious affections that expressed a general toxemia of pregnancy, a condition depending upon a state of the blood, a condition arising from hepatic insufficiency, to which it is generally agreed the pregnant woman is strongly predisposed.

Pregnancy, of course, is the *sine qua non* among etiological factors, because this group of symptoms with its special lesions of the liver and kidneys does not occur in the non-pregnant; the entire picture is seen only in gravidity.

It is an interesting fact, noted generally by observers, and in accord with our own experiences, that eclampsia symptoms often improve, either upon the death of the fœtus or its removal through the birth canal; a powerful evidence of the specificity of the fœtus.

It is generally believed that nitrogenous substances participate in the toxemia of pregnancy because of the failure of the liver to synthesize the lower nitrogenous products of cell disintegration, or of ingested food, into urea and uric acid—bearing a certain resemblance in this respect to the chemistry of gout, with its uric acid undestroyed. What a remarkable organ the liver must be, with its laboratory facilities for neutralizing the vast quantities of food stuffs that come to it hourly, especially when we think of our gastronomic, and bibulous proclivities these days. All of the peptones and peptoids must be disintoxicated by the liver cells before they can be assimilated; all that we eat and drink, all the substances that form from the catabolism of millions of cells, are carried there in the blood stream, to be treated, or to be rendered inert, by the mystical power of these cells.

So, as a matter of fact, we cannot get a toxemia of pregnancy or eclampsia until we have an hepatic insufficiency. This may be acquired in various ways, one of which is a mechanical one. With the rising of the uterus above the pubis, intra-abdominal pressure is greatly increased, the liver is crowded, and thus rendered less efficient, with more to do—hence the predisposition to toxemia in pregnancy.

Of course, the risk increases as pregnancy advances, and thus we get the largest number of eclampsias in the later months. Then the woman takes very little exercise and is often constipated, and we have “failure of the liver,”—overwhelmed by the accumulated toxins that should have passed out through the bowels and kidneys.

The proper care of the pregnant woman through each of the months of her gravidity ought to mitigate, if it does not entirely prevent the circumstance of eclampsia. Having endeavored to forestall the development of tox-

mia by a careful knowledge of her daily life, and intelligent direction as to its conduct, we should most carefully watch for the symptoms of the pre-eclampsic state, *increased blood pressure, headache, dizziness, gastric disorders and lassitude.*

Since non-albuminuric eclampsia exists in from 9 to 16 per cent. of the cases, we need something more than a routine, and sometimes very indifferently performed test for that sign of kidney inadequacy—albuminuria. In fact, the non-albuminuric form is the more fatal.

Section adjourned.

Analyses, Selections, Etc.

Methods of Dosage.

One could go through the Pharmacopeia, citing instance after instance in which the dose suggested ranges from 1:6 to 1:15 of the active principle as compared with the whole drug product, says G. L. Servoss, Gardnerville, Nev.

The method of the dosimetrist carries with it a greater degree of safety than does that carried out in the administration of the galenics. In the latter the effect of the active constituent of the drug may be inhibited by the presence of some other portion of the drug, and while inactive immediately, an overactivity may follow, owing to the elimination of the inhibiting portions of the plant, or by reason of the large amount of the active principle accumulated. The isolated principle, on the other hand, has nothing associated therewith to act as an inhibiting agent, and it, as a rule, becomes immediately active and effective. Because of this latter fact there is practically an absolute certainty as to knowledge of anticipated effect, and the doctor is able, because of this, to dispense or prescribe just enough of the drug, and no more, to obtain desired results. It frequently occurs that four or five 1/134 gr. doses of the amorphous aconitine will produce the same effects as will two or three doses, of 10 M. each, of the U. S. P. tincture of the whole drug. This means greater safety for the patient, as he is never brought under the full physiologic effect of the drug and consequently is less liable to be overdosed, with the attendant danger of the latter.

The question of standard is solved to a greater extent with the isolated principles than

with the U. S. P. products of the whole drugs, even though the latter may be standardized. The former carry nothing of an inhibitive nature, and unlike the latter, are much less liable to decomposition, an old isolated principle being, as a rule, as active as is one recently manufactured. This is not true, as a rule, of the whole drug, galenic products. These are liable to decomposition and the standard may vary largely between recent productions and those which have been on the shelves for any considerable time. There are a few of the active principles, in their simple forms, which are liable to decomposition, but it has been found that by combining them in chemical form with some of the acids permanency obtains, and without interfering with their activity. When so combined they remain indefinitely stable and standard.—(*Indianapolis Medical Jour.*, October, 1912).

Heredity in Relation to Eugenics.

The first Eugenic Congress has been held at the University of London under the presidency of Major Leonard Darwin, son of the great evolutionist. It was organized by the Eugenics Education Society to spread a knowledge of the laws of heredity so far as they may by properly selected marriage improve the race.

For five days some 400 members, representing all nationalities read and discussed papers on every aspect of eugenics—the science of improving the race by better breeding, or, as the late Sir Francis Galton put it: The science which deals with all influences that improve the inborn qualities of a race. Culture is much but the seed is more. Man is an animal—the laws of improvement of corn and race horses hold true for man also. Ignore this simple truth and human progress will cease. Blood will tell.

As a cold science eugenics does not deal with the happiness or misery of parents as do novels and divorce courts, but with traits that are in the blood, the protoplasm. The superstition of paternal influence and of venereal disease, dire as they are, lie outside of the pale of eugenics in the strictest sense.

These diseases are disgenic agents of the first magnitude and of growing importance, but nature protects her best blood from them and they are repugnant to normal persons; their elimination will be by education rather than by legal and marriage restriction. The state has bigger things to do than fight gonorrhea and syphilis—it has to create a moral and intellectual condi-

tion in which the great diseases such as tuberculosis, pneumonia, typhoid, plague and the venereal diseases cannot exist.

The general purpose of the eugenist is plain—it is to make young people use their reason in the selection of marriage mates—to fall in love intelligently; to control the propagation of the mentally incompetent. The purpose of the London Congress is to study the laws of inheritance and make them known, so that the good sense of the majority of young people drifting toward marriage will lead them to stop and consider if the contemplated union will result in healthy and mentally well-endowed offspring.

What the United States should get rid of is the supporting of half a million insane, feeble-minded, epileptic, blind and deaf people; to decrease to a minimum the 80,000 prisoners and the 100,000 paupers which cost over 100 million dollars every year. We have become so used to crime, disease and degeneracy, that we regard them as necessary evils. Eugenics would reduce these evils by securing good progeny by a wiser marriage selection.

Indeed, President Darwin doubts whether Western civilization is not now at a standstill and in danger of retrograding, under our present charity methods, as the unfit are no longer killed by hunger and disease but are cherished and enabled to reproduce their kind. We glory in our charity; we are blind to the danger of interfering with Nature's ways. The moral code does not affect cattle breeders, but it introduces vast difficulties in the case of man. We have answered yes to the query, "Am I my brother's keeper?"

Conscious selection must replace the blind forces of natural selection. Eugenics is the practical application of the doctrine of evolution—it teaches the generation and survival of the fittest.

The need of eugenics is best shown by a study of the present results of marriage; of the one and one-half billion of the world's people about 50 million babies are born each year—in the United States, 2½ million. Of these half a million die in the first year, and half of 1¼ million die before their 23rd year, and before they have had much influence in the world's affairs. Only 1200 thousand will reach full maturity, and of these 40 thousand will be ineffective through sickness. Over four thousand will be in the care of institutions; other thousands will

be causes of social disorder, and other thousands will take care of the sick, the weak and the unruly. And over 100 thousand will be non-productive in wealth.

Thus the great mass of 2½ million yearly crop is cut down to about 550 thousand males and these constitute the body of workers strong enough, and wise and willing enough to do the work of the country, with the aid of the women, but four-fifths of these are in the work of home-making and the rearing of children.

So we see what a small part of the great army of infants are well enough born and reared to render productive the great areas of the United States, and in forming a united, law-abiding and effective nation, setting the pace for the remaining 93 per cent of the world's people to higher ideals, greater comfort, and longer life.

There is certainly a field for eugenics. It is to study the relations of heredity to eugenics that the International Congress was called. There will be a meeting every three years—the next either at San Francisco, in 1915, or in Paris. Time alone will tell the results, but it is certainly along this line that human progress must advance.—(Editorial, *Ibid.*).

Dangers of Common Colds.

Ever since the influenza epidemic of 1889-90 we have experienced waves of infectious catarrhal colds which have been spoken of as influenza, or grip, or simply as colds. To these infections the infant seems to be especially susceptible. When one of these colds invades a household, several of its members usually contract it. While some adults may escape, the baby or the child of runabout age is almost invariably affected. These infections spread rapidly and with great certainty through the wards of institutions caring for young children. During recent winters in one institution the sickness from this source has far exceeded that from all other infectious diseases of childhood. One of the most important results is its interference with nutrition. This is of somewhat less importance among children of the runabout age, but in any group of bottle-fed infants such infection not only prevents gain but is, as a rule, accompanied by definite loss in weight. We are too prone to look on these colds as local affections when they are, in reality, infections.

When a group of children in a family becomes infected, we often see established a house infection with, at intervals, recurrent outbreaks,

which may extend over a number of months, until the advent of warm weather or the departure of the family to the country. This experience is so general in New York as to be a matter of common report among parents. Some susceptible children are kept free only by continued residence in the country, but unfortunately suburban colonies and country towns have their own share of infectious epidemics.

The amount of injury done young children each year by such colds can scarcely be estimated. During the prevalence of such colds, the possibilities of infection are excellent if the young child travels by train, rides in public conveyances or is taken to hotels or crowded shops.

Only recently, says Dr. Thomas S. Southworth of Boston, have we begun to appreciate the ravages of these subtle forms of infection. With such knowledge, however, goes the moral obligation to throw off our indifference, to face the question fairly, and to do all in our power to lessen the unnecessary sickness and the too frequent pneumonia which follows it.—(*Jour. Am. Med. Assn.*, Nov. 30, 1912).

Juvenile Psychasthenia.

Tom A. Williams, Washington, D. C., writes that peculiar behavior in a child need not mean either insanity or defect. It may be caused by a temporary maladjustment to a painful situation with which the child finds itself unable to cope. If the sky is not cleared by understanding, the child's attitude towards its surroundings may become morbid, and a neurotic character will develop. Such juvenile misunderstandings are a fertile source of psychasthenia and other neurotic disorders in after life.

The parents' earnest desire to do right is insufficient *unless guided by insight*. Ill-informed theories, either pseudo-scientific, ethical or theological, frequently shipwreck the psyche of young people.

A parent of a girl of eleven refused her impulsive affectionateness and restrained her love of active games from a *desire for propriety*. As a result, the poor child, believing herself unloved, brooded, lost appetite and began to pine. Fortunately, no time was lost in inept medication. Psychopathology explained the case and she was quickly restored to health.

Another child was made overconscientious when four years old through reproofs of his jealousy of a little brother. Self-imposed pen-

ances grew upon him until his peculiarities made life a burden. A few months of wise direction and practice by the boy, then fourteen cured him.

A little child of eight had been treated for St. Vitus' dance and kept from school for a year because of numerous grimaces and gestures. Proper analysis showed that these were attempts to kiss away the poisonousness from the air she exhaled, so as to avoid injuring others; and the gestures were due to attempts to give the healing touch to the objects upon which she trod to lessen their injury.

The methods of managing such situations in children are outlined in this paper.

The rapid cure of these cases must be contrasted with the two years required for the mastery of the obsessions in a woman whose extreme inadaptability was purely the result of mismanagement of a disorder of similar type during her childhood.—(*Author's Abstract*).

Treatment of Pellagra With Gelsemium.

Roy Blosser, Atlanta, was led to use gelsemium in endeavoring to relieve a pellagrous patient who complained constantly of severe pain in the feet, obtaining remarkable results when the usual remedies failed. So far as Blosser is able to ascertain, this drug has not been used heretofore in this disease, probably because of the contraindication on account of the anemia generally present. The depressing nature of the drug should be borne in mind, and its effect closely watched. It is recorded that thirty minims of the tincture caused death in a patient with feeble circulation, though it is possible that this might have been a case of extreme idiosyncrasy. The dose used by the writer is three or four drops of the fluid extract given every fourth hour. If drooping of the eyelids or diplopia occurs, the medicine is withheld and no further unpleasant effects occur.

The medicine was used in five cases. In the first all other agents were discontinued, and the patient soon had cessation of the pain in the feet; strength increased; appetite returned and weight increased forty pounds, the patient apparently regaining her normal state of health. Much improvement was noted in four other cases.—(*Journal-Record of Medicine*, November, 1912).

Editorial.

The Status of Pellagra in the United States.

Surgeon C. H. Lavinder, in the *Public Health Reports* for December 13, announces the result of his investigations regarding the prevalence and geographical distribution of pellagra. While not throwing any light on its specific etiology, and with no mention of treatment, there is given much important data, which, because of the large number of cases considered, will serve to make his report a valuable contribution to the study of this comparatively recent but much-to-be-dreaded disease in our midst.

The report covers the years 1907-1911, and was obtained in great measure from return postals sent to individual practitioners in eight principal States of the pellagrous area, which, to a large extent, lies outside the "registration area" for deaths. Replies received from about one-fourth of the cards mailed to physicians in Virginia, North and South Carolina, Georgia, Kentucky, Alabama, Mississippi and Louisiana show a total of 15,870 cases, with a mortality of about 39 per cent. The report does not state what became of the remaining 61 per cent, but, judging by many trust-worthy statistics that have come to our notice, the death rate would have been very decidedly increased could each of the cases noted have been followed to its termination. In a late report on *Pellagra in Maryland*, by Dr. C. W. G. Rohrer, of the Maryland State Department of Health, published in the *Semi-Monthly*, November 22, thirty-one cases are recorded since 1905, with twenty-eight deaths—a mortality of over 90 per cent.—with only one recovery, and two cases improved.

Of the States named, the distribution of pellagra has been as follows: Georgia, 4,558; Mississippi, 2,895; North Carolina, 2,412; Alabama, 2,314; South Carolina, 1,880; Louisiana, 670; Virginia, 628, and Kentucky, 513. In Virginia, the disease apparently has "played no favorites" as to section, having been generally scattered from East to West, and from North to South, only nineteen counties, which are for the most part widely separated, having reported no cases. It appears that, as a rule, the areas more thickly populated have suffered the most, as, for instance, during the period named Hen-

rico has had 79 cases; Norfolk, 64; Pittsylvania, 39; Campbell, 33; Roanoke, 31; James City, 22; Greenville, 21; Augusta, 17; Halifax, 16; Fauquier, Montgomery, and Nottoway, 13 each; and selecting other counties here and there, we find: Accomac, 9; Albemarle, 10; Bedford, 11; Botetourt, 2; Fairfax, 3; Henry, 12; Lee, 7; Smyth, 8; Stafford, 12, etc. We venture to say that very few physicians in Virginia have fully realized how firm a foot-hold this insidious and many symptomated trouble has secured on our people.

In Dr. Lavinder's compilation, responses to his inquiries gave no indication of race or sex for 2,041 cases. The remaining 13,829 cases showed 9,781 white pellagrins, of whom 2,924 were male and 6,857 female, against 4,048 negro pellagrins, of whom 931 were male and 3,117 female. In other words, the white cases were more than two and one-half times as numerous as the colored; while the total number of females affected was 9,974, as compared with 3,855 males.

People living in the country seem to have been afflicted twice as often as those living in cities. Circumstances of patients were reported as: Poor, 6,641; moderate circumstances, 5,359; well-to-do, 1,102; condition not reported, 2,768.

Of the 15,780 cases, more than one case in a house or family was noted 933 times, and more than two cases 235 times. The determining factors in transmissibility are, however, unknown, and the occurrence, which was about 1 in 10, though worthy of consideration, may have been incidental.

Pellagra occurs at all ages, but the cases appear to predominate between 20 and 40 years.

There were only nine States in the United States which had not reported the disease during the period of 1907-1911, and these were New Hampshire, Idaho, Minnesota, Montana, North and South Dakota, Utah, Wyoming, and Nevada.

All indications point to the fact that pellagra is gradually increasing in this country. The appeal is being made by health authorities on all sides to make the disease reportable, and those who have watched its unrelentless ravages upon the poor victim, and have seen hope sink and death ensue, recognize the necessity for such a measure. Surely the increasing prevalence of a disease of so serious nature makes it

necessary for the adoption of radical measures for its control, and we should at least report its presence, etc., even if not already required by statute, with a view to aiding in its more comprehensive study, to the end that the malady may be at least ameliorated, if not finally obliterated.

The Southern Surgical and Gynecological Association,

An organization which numbers in its membership some of the most eminent surgeons of the United States, met at Old Point Comfort, Va., December 17-19. During the time of the meeting Dr. Jos. C. Bloodgood, of Baltimore, upon invitation of Dr. J. Kennedy Corss, performed a couple of operations at the St. Francis Hospital, in Newport News. An elaborate smoker was among the entertainments extended the guests.

The officers elected are: President, Dr. John Young Brown, St. Louis; Vice-Presidents, Drs. A. Morgan Vance, Louisville, Ky., and Lomax Gwathmey, Norfolk, Va.; Secretary, Dr. W. D. Haggard, Nashville, Tenn., and Treasurer, Dr. Le Grand Guerry, Columbia, S. C. Dr. Floyd McRae was elected chairman of the Committee of Arrangements for the next meeting which will be held in Atlanta, Ga.

The Richmond Academy of Medicine and Surgery

Held its annual meeting December 10, Dr. A. L. Gray presiding. After the discussion of some business matters before the Academy, and the election of six new members, the annual election of officers was held, resulting as follows: President, Dr. J. Shelton Horsley; Vice-Presidents, Drs. R. C. Bryan, W. S. Beazley, and Geo. C. Woodson; Secretary, Dr. Mark W. Peyser; Assistant Secretary, Dr. E. H. Terrell; Treasurer, Dr. W. A. Shepherd, and Librarian, Dr. G. P. LaRoque. Members of the new Judiciary Committee are Dr. Wm. S. Gordon, chairman, and Drs. C. M. Miller, McGuire Newton, D. M. Mann, H. M. Taylor, and Wm. T. Oppenheimer.

The Shenandoah County (Va.) Medical Society

Met in Woodstock, December 12, with a good attendance, and several interesting papers were read. The annual election of officers resulted as follows: President, Dr. S. J. Hoffman, Woodstock; Vice-Presidents, Drs. D. O. Foley,

Mt. Jackson, and W. C. Ford, Woodstock; Secretary-Treasurer, Dr. Wm. F. Driver, New Market, who was re-elected.

Report of Virginia State Epileptic Colony.

The third annual report of this institution, recently received, shows that for the year ended September 30, 1912, 141 patients—men and boys—had been cared for, accommodations having been provided for 21 additional patients during the year. The property has been considerably improved and the *per capita* cost of support reduced nearly \$50. The Superintendent, Dr. A. S. Priddy, lays especial stress upon the need of employment for the patients, and most of the work in improving the farm and grounds has been done by patients. At least one-half of the inmates render service of some kind, but he calls attention to the need of shops, school and employment suitable to the boys.

The building for feeble-minded women will be ready for the occupancy of not less than fifty women by March 1, 1914, and it is proposed to first take in those of child-bearing age, so as to overcome the increase of this defective population in the State. In the fiscal year 1913-14, from the appropriation of \$35,000 made by the General Assembly, it is planned to build a two-story brick building with accommodations for not less than 100 epileptic women.

The report is especially interesting in view of the great good being accomplished for this afflicted class in the face of the obstacles to be overcome as a new enterprise in this State.

The Seaboard Medical Association of Virginia and North Carolina

Held its seventeenth annual session at Newbern, N. C., December 3-5, Dr. N. M. Gibbs, of that city, presiding. The attendance was good, with an excellent program of papers, and the informality of the numerous entertainments given made this one of the most enjoyable meetings in the history of the Association.

Norfolk, Va., was selected as the next place of meeting, and the following officers were elected: President, Dr. J. E. Rawls, Suffolk, Va.; Vice-Presidents, Drs. H. D. Walker, Elizabeth City, N. C.; Joshua Tayloe, Washington, N. C., and G. K. Vanderslice, Phabus, Va.; Secretary, Dr. Clarence Porter Jones (re-elected), Newport News, Va.; Treasurer, Dr.

Israel Brown, Norfolk, Va., and Orator, Dr. Jos. Spruill, Columbia, N. C.

Winchester Memorial Hospital to Be Enlarged.

In order to meet the pressing demands of those constantly seeking treatment at this hospital, the physicians of Winchester have just started a campaign to raise an amount which will be sufficient to double the present capacity of the institution. To do this it is proposed to erect two additions to the present structure. The amount already raised by personal subscription of Peter Winchester Rouss, of New York, and contributions of the members of the medical staff aggregates several thousand, and it is hoped the remaining \$10,000 necessary will shortly be contributed by friends.

The Medical Examining Board of Virginia

Finished its winter sessions in Richmond, December 20, fifty-seven applicants to practice medicine in this State remaining in the contest to the end. Among the applicants were several women, two of them colored—the first to ever appear before this State Board. The next semi-annual examinations will be held commencing June 24, 1913.

Danville, Va., to Have A Health Officer.

The Common Council and Board of Aldermen of Danville, Va., at meetings early in December both voted to have a city health officer, and an appropriation was made of \$2,500 annually for the doctor, who is yet to be selected for the position.

Medical Needs of the Foreign Missionary Field.

Notices have been sent out by the Secretary of the Student Volunteer Movement for Foreign Missions asking for women physicians and trained nurses as well as for medical men who are interested in the need for physicians in foreign countries. In all cases the applicant should be prepared to make professional knowledge and skill directly subservient to the furtherance of the Gospel. It is impossible in our limited space to detail the great amount of good which has been accomplished through medical missionaries in the foreign fields and the great possibilities yet before them. Mr. Wilbert B. Smith, 125 East Twenty-seventh street, New York City, will be glad to answer the inquiries of those interested in this work.

The Neurological Sanatorium.

Dr. Beverley R. Tucker this month opened a private sanatorium for the treatment of nervous diseases, under the above name, at 102 East Grace Street, this city.

The Instructive Visiting Nurses' Association, of Richmond,

Is rendering very material assistance in looking after the city sick poor, having in the last two months paid over 3,000 visits, in addition to manifesting an interest in other charitable and benevolent work. In October 1,670 visits were made by the nurses to 200 patients, and in November 1,428 visits to 227 patients.

Red Cross Xmas Seals.

Reports from Virginia, as well as from all over the United States, show that the sale of these stamps exceeds by far that of previous years, and the National Association for the Study and Prevention of Tuberculosis estimates that the proceeds from the sales will net between \$400,000 and \$500,000 to aid in the fight against the white plague.

Obituary Record.

Dr. William S. Love,

One of the most widely-known and beloved physicians of the Valley of Virginia, died suddenly at his home in Winchester, December 12, shortly after returning from a professional call. He was born in Ireland, seventy-six years ago, and came to this country with his parents when a very small child. Dr. Love studied medicine at the University of Pennsylvania, from which he graduated in 1861, shortly thereafter entering the Confederate War, through which he served as an army surgeon. Upon the close of the war he located in Winchester, where he has since lived and practised his profession. He was one of the surgeons of the Baltimore and Ohio Railway Company, and a prominent Mason, at the time of his death being past master of the Hiram and Love Lodges in Winchester.

He is survived by his widow and three daughters, two of whom married well-known Virginia doctors.

THE Virginia Medical Semi-Monthly.

(FORMERLY VIRGINIA MEDICAL MONTHLY.)

Vol. 17, No. 19.
Whole No. 403

RICHMOND, VA., JANUARY 10, 1913.

10 Cents a Copy
\$2.00 a Year

Original Communications.

FEEBLE-MINDED CHILDREN.*

By L. S. FOSTER, M. D., Norfolk, Va.

This is a subject so great in proportion and involves so many phases of child life, that time will only permit on my part a brief discussion.

First, we must decide what compose the feeble-minded. We will, therefore, for convenience, divide them into three classes: In the first class we place the idiot; second, the imbecile; and third, the highest class, formerly called the feeble-minded in a specific sense, but now given the name of moron.

The Royal College of Physicians of London has given the following definitions, which have been adopted by the Royal Commission on the feeble-minded as a basis of classification. The idiot is defined as "a person so deeply defective in mind from birth or from early age, that he is unable to guard himself against common physical danger". The imbecile is defined as "one who by reason of mental defect existing from birth or from an early age, is incapable of earning his own living, but is capable of guarding himself against common physical danger," while the moron is defined as "one who is capable of earning his living under favorable circumstances, but is incapable from mental defect existing from birth or from an early age, of competing on equal terms with his normal fellows, or of managing himself and his affairs with ordinary prudence".

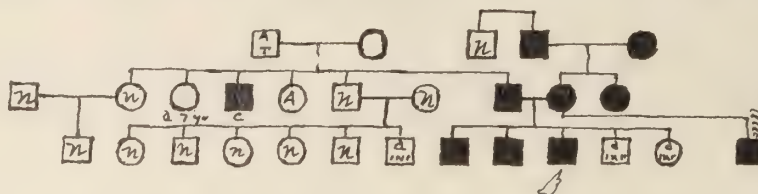
The study of idiocy is a study of the pathology of the infantile brain, rather than of any individual disease. The causation of idiocy is

concerned with the processes which interfere with the normal development of the brain. The chief anatomical evidence available for the determination of the time required for the gross development of the cerebrum, and to a certain extent of intellectual capacity, is derived from the weight of the brains of persons at different ages. The most rapid accession in brain weight occurs during the first two years of life; at the end of the second year it is nearly three times its weight at birth. The increase in succeeding years is less rapid, but with slight variation is constant until the fifteenth year, when the maximum is attained. Inasmuch as the brain has attained its greatest growth as far as can be determined by weight at the fifteenth year, mental enfeeblement occurring after that age should not be classed as idiocy, imbecility or feeble-minded, but rather dementia.

By far the larger number of idiots are born with brains which are either already imperfectly developed, or which receive the check to development in the first few years of life,—over 60 per cent. are congenital. Of 286 acquired cases reported by Piper, in 216, or 75 per cent., the defects in intellectual calibre became apparent in the first four years of life. In the first and second years it was 30 and 24 per cent., respectively. We may, therefore, divide the determining causes into three classes: First, those occurring before birth; second, those occurring at birth; and those occurring after birth. In the first class we know that the agency of heredity is conspicuous. The transmission from parent to offspring of the tendency to defective or abnormal development is so well known, that it is only necessary for us to look carefully in the family history to demonstrate the hereditary factors, as will be seen by the charts I present.

*Read before the forty-third annual meeting of the Medical Society of Virginia, at Norfolk, October 22-25, 1912.

Explanation of Symbols. Square with N = normal male. Circle with N = normal female. Black square = feeble-minded male. Black circle = feeble-minded female. Circle with dot = still born. A = alcoholic. C = criminal. D inf = died in infancy. Sy = syphilis. Sx = sexually immoral. T = tuberculous. The index hand points to the child in the training school at Vineland, N. J.



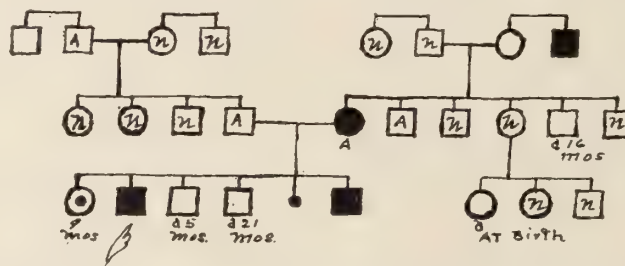
Vineland, N. J.—Goddard.

Chart I.—Shows the maternal grandparents, feeble-minded, and they have, as usual, only feeble-minded offspring—two girls. One of these married a feeble-minded man, whose brother was feeble-minded and a criminal, and whose sister was disgracefully alcoholic. However, a normal brother of the husband married a normal woman and had six normal children. The offspring of the feeble-minded woman and this feeble-minded man were three feeble-minded children and two others, who died in infancy. An illegitimate child of this woman was feeble-minded and a criminal.

I find from the annual report of the Eastern State Hospital for the year ending September 30, 1911, the number of insane admitted since 1868, a period of 43 years, was 4,687, and of this number 57 were under 15 years of age when admitted; and that 243 were under 15 years of age when attacked; this is an average of 5 a year. We may expect from persons whose nervous systems are exhausted, diseased or defective, children whose nervous systems are improperly developed or are liable to succumb to the action of disease-inducing agents. It is simply a manifestation of a deterioration of the vital forces, and involves the subject of degeneration, whose causes are numerous and varied.

family history is not what it should be,—intoxication or perverted mental states in either parent at the time of conception must be regarded as causes of these conditions. "Young man," said Diogenes to a feeble-minded boy, "thy father must have been very drunk when thy mother conceived thee."

Although these causes are most prominent when on the maternal side, they act in various ways. The hereditary taint may come from one or both parents, or from one or both grandparents. It may affect only one of a family of children, leaving the others apparently normal. The child of an alcoholic father may be epileptic, or the child of an epileptic may be insane



Vineland, N. J.—Goddard.

Chart II.—Shows a combination of alcoholism and mental defect in the ancestry of the parents, resulting in alcoholism on the one side and direct feeble-mindedness with alcoholism on the other. The offspring of these two individuals are all defective—one still-born, two that died young, one miscarriage, and two feeble-minded.

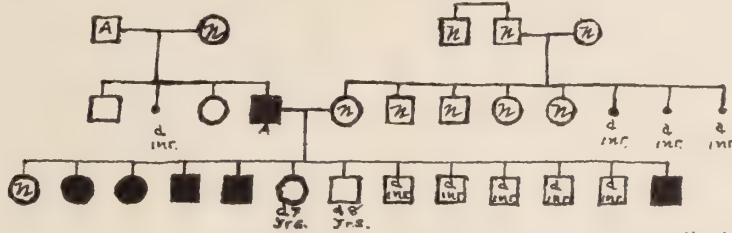
Anything which exhausts or invalidates the nervous system of an individual, renders him prone to transmit to his offspring an imperfect physical and mental legacy. The nervous system need not be actively diseased; conditions of exhaustion, such as neurasthenia or chronic alcoholism are of themselves sufficient to endanger either perfect development or the normal resisting force in the nervous system of descendants. Similar results may occur from consanguineous marriages, especially if the

or idiotic without ever giving any evidences of epilepsy. The factors which are active at the time of birth in the causation of idiocy are mainly of traumatic character, such as direct injury to the infant brain or its membranes, with which you are familiar.

The most important causes after birth are diseases of the brain and its membranes, such as are produced by epilepsy, infantile convulsions and meningitis. In rare cases the mental deterioration appears to be the result of a blow

or fall on the head. Fright and overwork at school are sometimes cited as causes of idiocy, but very difficult to establish, and should be accepted with caution.

idiot is the less dangerous to society. The imbecile by experienced persons may be taught to make himself useful, but this would involve an enormous expense, and left alone is danger-

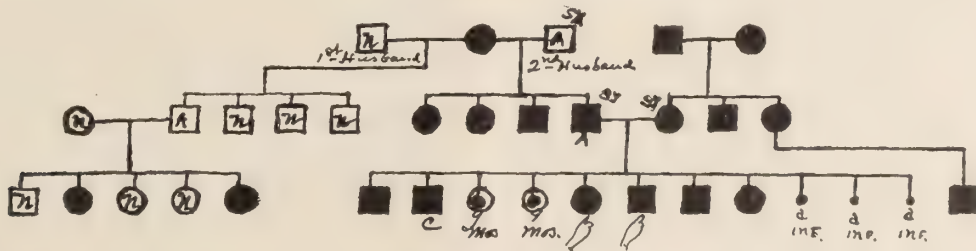


Vineland, N. J.—Goddard.

Chart III.—Is instructive, in that it seems to show the effect of a combination of alcoholism and mental defect in the father, when the mother's family is good, herself and sisters being normal. The result of this woman's marriage with a feeble-minded alcoholic man is five feeble-minded children, five that died in infancy, two others that died before their mental condition could be determined, and one normal child—apparently a clear case of transmission through the father.

In considering the third or moron type, we approach, if we do not get over, the border-line of insanity. To determine the standard of sanity, which is not a fixed quantity, depends upon many conditions. There is a standard of environment which varies not only with every stage of civilization, but also with each social station and each grade or phase of education. What would be natural and common-place in one state of society or in one community, would be altogether unusual in another. Then there is what may be called the standard of the individual, the shaping of which, as we all know, is begun even before birth, in inheritance. Every one acts and thinks in his own way, and

ous and at times very destructive. The highest group, the moron, according to the definition given, has two characteristics: first, they are unable to compete on equal terms with their fellows; and second, they are unable to manage their affairs with ordinary prudence. You can readily see that to care for this class would require a large number of people, besides an enormous use of money, to see that their affairs are managed with prudence; therefore, the elimination of this grade of feeble-mindedness would be the greatest boon of all. They are nearly always an object of charity or dishonest persons. In many cases the natural instincts, however vile they may be, express themselves to the full,



Vineland, N. J.—Goddard.

Chart IV.—Shows the descendants of a feeble-minded woman who was married twice. Her first husband was normal. There are four normal children one of whom is alcoholic. This alcoholic son married a normal woman and produced two feeble-minded and three normal children. This is an instance of the defect skipping a generation, being transmitted by the grandmother through the father.

The second marriage of this feeble-minded woman was with an alcoholic and immoral man. The result was four feeble-minded children. One of these became alcoholic and syphilitic and married a feeble-minded woman. She was one of three imbecile children born of imbecile parents. The result here could, of course, be nothing but defectives. There were two still-born, and three that died in infancy. Six others lived to be determined feeble-minded. One of these was a criminal. Two are in the institution at Vineland. The mother's sister also had a feeble-minded son.

thus there is found a special standard of normality which is made up of the habits, social instincts, education, training, and those moral traits that constitute what we call character.

Of the three grades of feeble-mindedness the

because this class has no power of control over them, and they easily turn such instincts to crime, and thus become a menace to society. They constitute very largely the class that fill our jails and compose the prostitutes. A large

per cent. of the latter class are so, because they cannot make a living in an honest way, and they easily become the victim of others who have had designs upon them. They are a menace to public health as well as its morals.

A fair proportion of the three grades of feeble-mindedness may be considered as 25 per cent., 50 per cent. and 25 per cent. I bring this subject to your attention in order that we may be reminded of this growing weakness in the children of the country and reflect upon the seriousness of the situation, and consider, if not possible to prevent this evil, to at least do our part in spreading intelligent thought, with the hope that the condition may be reduced to the minimum; and to further this end, I present some of the methods that may be used for this purpose.

We realize that the strong arm of the law is necessary in either method we may pursue. While by the thyroid treatment, it has been possible to restore the cretin from the imbecile type to a normal condition, both physically and mentally, we cannot rely upon this to a large extent, and must, therefore, exert our efforts to prevention of the production of feeble-minded persons. And I think the most effective way to accomplish this is by segregating and colonizing them in places where they can be made happy and useful in helping to add something to their own support.

We must prevent the marriage of the feeble-minded. This is a day of prevention, and in order to stay this increasing army of defectives, which are a great care and burden upon the country, requires the active co-operation of each of us; and to cope successfully with this menace we must lay aside sentiment and deal with the problem in a practical manner.

We should have a sterilization law upon the statute book of every State. Two States have already passed such a law, and by the concerted action of the profession in educating the people to understand the formidable results of improper marriages, we may in a short time induce other States to follow the good example. We must resort to vasectomy or castration in the male, and ligation of the tubes in the female in those cases that cannot be colonized.

As to the children who are already born defective, it has been estimated that at least 2 per cent of the school population belong to this class. They should be tested out by the Binet scale to

determine who they are, and then place them in an institution for their care.

It is gratifying to note that at least one of the clergy has taken a decisive stand in this matter of prevention. I refer to the Rev. Dr. Sumner, of the Protestant Episcopal Cathedral of St. Peter and Paul, of Chicago. He has announced that "After Easter, no person will be married at the Cathedral unless they present a certificate of health from a reputable physician to the effect that they are normal physically and mentally, and have neither an incurable nor a communicable disease." If all the clergy and others who can perform the ceremony would adopt the edict of Dr. Sumner, more than half the battle would be won. He ought to have their co-operation.

Bishop Whitehead, of the Protestant Episcopal Church of Pittsburg, says: "If the Government is careful in its breeding of cattle, horses, and other domestic animals, would it not be much more for the welfare of the whole community if like restrictions were placed upon the human race as well? No degenerates or those physically unfit in other ways should be allowed to marry, and the step taken by Dr. Sumner is in line with what should have been done years ago. I do not hesitate to express myself upon this question, and I think that every right-minded man and woman will think the same."

Bishop Earl Cranston, of the Methodist Episcopal Church, says: "All I have to say about Dean Sumner's edict is that it is anticipating public sentiment and practice by about a century perhaps; a half century at least."

I dare say none of us will doubt the wisdom of such a proposition when we reflect upon the untold misery resulting from the marriage of the abnormal, and the fact that the country contains about 3,000,000 abnormal persons, the care of whom is estimated to cost about \$200,000,000 annually. That alone should cause reflection, and would seem to offer sufficient reason why there should be established by law for the benefit of future generations the principle now adopted by Dr. Sumner. The adoption and enforcement of laws requiring physical and mental fitness prior to marriage would tend to prevent an enormous amount of suffering and vastly to improve the race. No one can even estimate the sum of human misery due to the marriage of the unfit. This is a mat-

ter of such grave importance that thinking people have awakened to the fact that the time has arrived when the problems of race development can no longer be ignored. Good physiques, sound constitutions and normal mentality are fundamental details necessary for the propagation of healthy offspring.

Dr. Davenport, in "Hereditry in Relation to Eugenics," says: "The human babies born each year constitute the world's most valuable crop. Here and there, by chance, well-mated parents produce a wonderful child who has sufficiently strong stock and good care to weather the diseases of childhood, and we have a Fulton, a Lincoln, an Edison to lead the nation slowly forward; but with what bounds could we advance if we could be as certain of raising everywhere as good strong stock in the nurseries of our nation as we do in the ranches of careful cattle breeders."

The energy and intelligence that can adorn our lawns and gardens with sweeter and fairer flowers, cultivate and produce better fruit, better vegetables, and better field products, increase and perfect the speed and style of our horses, if devoted and applied to the study of childhood and its interest, would materially aid in the culture, growth and perfection of the human race.

We have great reform movements, we pass new criminal laws, new laws for municipal government, stock laws, and even fence laws, but what have we done for the real inherent condition of the people? We have not taken the time in our busy every-day vocation to consider what the future generation is to be. Is it to be composed of men and women strong mentally and physically? Do you not know that that is a matter for us to decide? Will we do our duty to our city, State and country if we fail to fight for a reform in our marriage laws that will aid in giving us a strong and healthy race? But you say you cannot do this, and you cannot do that. Do you know that only a few years ago out of every thousand children born one hundred and sixty-five died before they were one year old; and in the congested manufacturing cities about three hundred and sixty-five died before the age of two? The mortality then in diphtheria, typhoid fever, yellow fever and many other diseases was simply enormous as compared with the death-rate to-day.

What has wrought this great change? Wholesome, sensible health laws, with competent

health officers, and the back bone of the nation giving them the moral support necessary; and with this same blood, bone and fibre of the nation we can prevent this stigma that stares us in the face and makes us blush for shame; that out of every one hundred children in the United States one is a failure, a cripple, imbecile or an hereditary criminal child.

Why is it that with the most improved method of educating, best text-books, better educated teachers, better equipped buildings, we do not have better pupils? Because teachers have to do their work with the kind of pupils parents send to school. If we had in the past given the proper thought and consideration to the future child, our schools would to-day be doing better work, for they would have better material, stronger boys and girls mentally and physically on which to spend their energy.

The same biological answer may be made to the critics of our churches, who, because we have thousands of well-trained, cultivated ministers and beautiful houses of worship, expect at once a millennium on earth. The ministers, like the teachers, must carry on their organizations with the material at hand and the people who unite with churches sometimes bring little of strength of blood and bone and marrow on which to build. These institutions are to be congratulated on the good work accomplished with the resources at hand. The only institution which does not keep pace with the progress of time is the home which produces the enfeebled, erratic and abnormal child—the despair of teacher, preacher and law-maker alike. As has been said, "The art of right living, the growing of men and women, should be the flower-culture of the future."

This discussion might be prolonged, but why? We must teach the normal and the healthy men and women the laws of race preservation and something of the dignity and beauty and sacredness of the marriage institution. Our young people must be taught how to marry. Think that a single family in the State of New York has produced nearly twelve hundred of the criminals in this country, and has cost the tax-payers one and one-quarter millions of dollars for arrests and detentions, and yet, the minister who preaches much on the sacredness of the home will ask God's blessing on the union of two lives that cannot possibly be blessed under the laws of life.

If all with authority to marry could be made

by law to observe the requirement of Dean Sumner, it would work no hardship on any one fit to marry, but would be the means of preventing much heartache, sorrow, shame, disease and crime.

One need not be over enthusiastic or unduly optimistic to feel that we are at the dawn of a new era of human progress, an era that promises benefits untold from the improvement of the physique, the lowering of infant mortality, the decrease of disease, fewer idiots, imbeciles and lunatics, the elevation of human mentality and the general uplift of human life in every particular that intelligent thought and investigation are bound to accomplish. It is up to the medical profession to take a stand and class this subject with preventive medicine, and by organization and active co-operation on our part, we can guide and direct a movement which will mean so much for our present society and the humanity of the future.

THE PRESENT MENACE OF BUBONIC PLAGUE.*

By HUGH S. CUMMING, M. D., Fort Monroe, Va.
Surgeon U. S. Public Health Service.

Twenty years ago, when I was a student at the University of Virginia, bubonic plague was hardly known even by name to any physicians in this country, save those who had delved into the history of the disease, or read such works as the immortal "Journal of the Plague Year," by Defoe, or, the account of the Florence holocaust by Bulwer Lytton in Rienzi. To none of us was the disease of more than historic or academic interest.

It is true that "pestilential buboes" are mentioned by the Greek Aretaeus, and Rufus of Ephesus speaks of an epidemic in his time. The great plague of Justinian started in Egypt in 542, spread over Europe, was called lues inguinaria in Gaul, swept Italy so that it was easy prey to the invading Lombards. Epidemics succeeded one another, and during the end of the 7th century, plague was described by Bede in England, and was spread over Europe.

In the fourteenth century a new era began: all previous epidemics had come from Africa, but now a new epidemic invaded Europe by way of the Crimea, its origin being referred to

"Cathay" or China. This terrible pestilence, afterward called "The Death" or the "Black Death," appeared in Italy in 1346, swept all of Europe, appeared in England the next year, and Hecker estimates that 25,000,000 people—one-fourth the entire population of Europe—died of the disease which was that peculiarly malignant form which we now call pneumonic.

The importance of this event in epidemiology is that, whether previously or not, plague became endemic in England and Europe; successive epidemics swept Europe during the fifteenth, sixteenth and seventeenth centuries, until in England they finally, culminated in 1665-66 in that "Great Plague" of London which killed over 70,000 persons, and which was so graphically described by Defoe, who thinks it originated, by the way, in bales of silk imported from Holland. After its recession, plague vanished from England, never to recur until the Glasgow outbreak of 1900. During these centuries most countries of continental Europe suffered from repeated epidemics with even greater mortality than Britain.

It was noticed that the waves passed on the whole from East to West, or from the Mediterranean countries northward, which led to the belief that the disease originated in Turkey or the Levant; hence, the system of land and maritime quarantine which was framed by the Venetians in 1485 to replace absolute exclusion and cessation of intercourse and which, as Payne says, "Remains a marvel of Italian ingenuity, such faults as it had being due to imperfect knowledge or to mistaken principles." There was a recession from West to East, Stockholm losing 40,000, Provence 60,000 and Prussia 250,000, until finally, in 1841, plague left Europe by its eastern gate, Constantinople, and, becoming extinct also in Syria and Egypt, the old Levantine plague seemed to have vanished. Good authorities held, however, that it was not extinct, and from time to time epidemics occurred during the nineteenth century in Caucasus and Kurdistan.

In 1879 Europe was panic stricken by an epidemic which was carried by Cossacks to villages on the Volga, with a mortality of 90 per cent. It is to be noted that this epidemic started in a mild, non-fatal form in Astrakhan, and a like sudden change to a severe type is not unusual.

Despite the large number of recorded in-

*Read before the forty-third annual meeting of the Medical Society of Virginia, at Norfolk, October 22-25, 1912.

stances of plague having been ship-borne from the Levant to Marseilles, Venice and other ports and from London, and despite the large traffic between England, Spain, and other infected countries of Europe and their colonies in America during the centuries following the discovery, I have been unable to find any record of plague having been brought to the Western World, though the accurate accounts of typhus fever in Mexico and small-pox in the English colonies would indicate that some record of such a calamity would have been preserved.

Eighteen years ago, therefore, this fearful pestilence, which had through centuries swept Europe, devastated London, Florence, Marseilles, Moscow, and Stockholm, and depopulated vast areas, seemed at the time to have expended itself, and was known to persist only in China and Persia.

The Present Pandemic of Plague.—Away up in Yunnan, China, however, there has been, at least since 1850, an endemic center, and from this Pakhoi was repeatedly infected; finally, in 1894, it found its way over land, Rennie thinks, to the great city Canton where in this one year the mortality is variously given as having been from forty to one hundred thousand persons.

The constant traffic down the river from Canton soon infected the great seaport of Hong Kong, killing between May and August about three thousand, and despite energetic efforts of the British authorities it has occurred every year since, being particularly bad this year.

This extension to that great seaport has proved to be one of the most momentous events in the history of epidemic disease, for the communication by sea traffic has spread the disease over both hemispheres until it is no longer a local epidemic but a true pandemic.

Bombay, the great seaport of India had been free from plague for over two centuries, but it had a large trade with Hong Kong, and some months after Hong Kong was infected, large numbers of rats died in the Chinese quarter. As is usual, the disease among men was at first mild, and as is only too usual, the diagnosis was denied or doubted until Haffkine's bacteriological investigations. The disease soon spread over the city, nearly half the population left in a panic, and plague has never since been absent from Bombay.

Soon spreading over India, the awful mortality increased from fifty-seven thousand in

Bombay to over a million in 1904, and four millions in the first decade which followed its appearance.

From these two cities the disease rapidly spread to the Southern Hemisphere, Madagascar, Mauritius, Portuguese South Africa, Numea, and to Manila, Hawaii, and other Pacific islands. Sydney, Australia, had a sharp epidemic clearly traced to imported rats.

Western Europe, after nearly two centuries of exemption, had a severe epidemic at Oporto and Lisbon, Portugal, and, as Payne remarks, "So strange are the ways of plague that from Oporto the Western Hemisphere for the first time in history became infected." Plague was first reported at Asuncion, an inland port on the River Plata, and soon afterward in Rio de Janeiro, Santos, Rosario, and Buenos Ayres.

In 1900, plague again crossed the Atlantic, this time from West to East, having been carried in ships from Rosario to Cape Town, whence it spread through British South Africa. During the same year an outbreak, not traceable to ships or rats, occurred in Glasgow, and cases were reported in London, Cardiff, Leith and Llandaff.

Of vastly greater importance to us, however, was the discovery March 6, 1900, of bubonic plague in San Francisco, and during the following twelve months or so there were reported 34 deaths out of 34 cases. As most of the cases were of the bubonic form which never shows 100 per cent mortality, no one knows how many cases really existed. Personally, it is my belief that plague had been present among rats or Chinese for several years before its discovery,—it is possible as far back as 1896.

After a period of denial or doubt and political chicanery which did not surprise a student of past epidemics (and here I may add every physician should study the History of Medicine—"It wad from mony a blunder free us, and foolish notion") energetic efforts were made to clean the city which were finally crowned with success after a campaign of rat eviction and extermination, and permanent sanitation by Surgeon Rupert Blue, now Surgeon-General of the Public Health Service.

At some time, however, the *Citellus beechyi*, or ground squirrel, in the surrounding rural districts had become infected, and large sums of money have been expended by the Federal and State authorities in efforts to exterminate these

rodents which do and have communicated this disease to man and thus infected the city and country.

About 1906 Sir Patrick Manson, in discussing plague at my quarters in San Francisco, said he believed plague would certainly become pandemic within twenty years and it depended upon the efficiency of sanitarians as to how seriously it would affect this country. Since then, like a great devil fish it has thrown out one tentacle here, another yonder, until last year we were horrified by an awful epidemic of the pneumonic form in North China, which, starting from the Tarbagan Marmot (*Arctomys bobac*), in which, like the *Citellus* of California it has become endemic, killed its thousands of people, having a mortality of 100 per cent. This summer we were startled by an outbreak at our door, Porto Rico, with cases in Havana and Liverpool.

Plague is Pandemic.—We do not know where else it may be but we do know that it is in Asia, including Japan and the Philippines, Hawaii, Australia, the whole west coast and most of the east coast of South America, Africa along its three coasts, the Canaries, Azores, Madeira, the West Indies, and Liverpool.

To me as a quarantine officer who has seen and fought plague, it is an uncanny foe. It is not the vessel with a case on board, it is not the vessel from a known infected port, for these we can see and handle; it is the vessel with a clean history from a supposedly clean port with perhaps a sick rat and his parasite fleas safely hidden mayhap in a crate of straw-packed crockery, or, the man who has been infected but is yet in the incubative stage.

What is this disease which, defying modern science, has burst forth from its lair after centuries of quiescence after having depopulated cities and devastated countries?

Allbutt and Rolleston define it as "An acute infective febrile disease, accompanied by inflammation of the lymphatic glands, caused by a micro-organism, the bacillus pestis;" Osler as "A specific, infectious disease caused by the bacillus pestis, characterized by inflammation of the lymphatic glands (buboes), carbuncles, pneumonia, and, often, hemorrhages."

The bacillus pestis, identified by Kitasato a couple of days after he and Aoyama arrived in Hong Kong, June 12, 1894, and by Yersin independently a day later, is found in the buboes

in ordinary cases, in the blood in pesticaemic cases, the sputum in pneumonic forms, and in the spleen, liver and affected glands in all cases. Generally a short, cocco-bacillus, it shows a tendency to polymorphism in lesions, which is important from a diagnostic standpoint, the organism showing long rods, and large oval, pear-shaped, or round involution forms. The organism is Gram negative, nonmotile, capsulated, does not liquefy gelatine, stains strongly bipolar with Romanowsky stains, carbol fuchsin or thionin. Growths may be obtained between wide ranges of temperature—4 to 43 C.

Culturally, identification is made (a) by the optimum growth at 30 degrees (unlike almost any other pathogenic organism), dewdrop colonies on agar in 24 hours at 30 degrees, or surface colonies on gelatine at 20 C., rapid development of involution forms on agar to which 2 to 3 per cent sodium chlorid has been added, and by stalactite growths beneath the oiled surface of peptone bouillon with clear fluid above and deposit following; (b) by inoculation of monkeys, or, preferably, of guinea pigs or rats, by the cutaneous method of Albrecht in which the belly of the rodent is carefully shaved and an emulsion of the suspected material rubbed on the surface. In 36 hours or so, the seat of the inoculation will have local vesicles, the animal will be ill, temperature raised, eyes suffused, glandular invasion, definite swellings at the infection atrium, and death in 3 or 4 days.

Autopsy will show vascular engorgement of subcutaneous tissue, enlargement of glands, with oedematous or hemorrhagic surrounding tissue, enlarged mesenteric glands, frequently pleuritic effusion with congested lungs, enlarged, firm spleen and an apparent fatty appearance of the liver. The organisms may be found most numerous in the spleen and buboes. While very fatal to rodents and primates, the organism is pathogenic, but less so to horses, cattle, sheep, dogs and cats, infection being generally followed by local manifestations and pyrexia.

I recall one case of submaxillary bubo in a cat found in Kobe. The organism has been repeatedly found in cock-roaches (*blatta orientalis*), flies (*musca domestica*), bedbugs (*cimex lectularius*), and lice (*pediculus vestimenti*). Mosquitoes are acquitted by all investigators. Most important is its effect upon rats which can be infected with ease through almost any

channel, for there is the most intimate connection between plague in rodents which really seem to be the natural host of the disease, and outbreaks in man, and of great importance is it that since Ogata and Simond first experimented it has been definitely proven by the later Indian and other observers that the flea, the *pulex cheopis* in India, the *pulex irritans*, and others elsewhere, are the main channel of infection from rat to rat, and from rodent to man, and Zirolia and others have found them to carry the organism for seven or eight days.

Clinically, in both human and rodent victims, the disease appears in three forms: Bubonic, Pesticæmic or Septicæmic, and Pneumonic.

Pestis Minor is simply a mild, non-fatal, apparently non-contagious type, with slight glandular enlargement and febrile movement comparable to the mild illness of allied types which frequently precede epidemics of other diseases, such as cholera, small-pox and typhoid fever. "It is impossible," says Sir Richard Thorne, "to read the medical history of this disease without being impressed with the frequency with which recognized plague has been preceded by ailments of such slight severity, involving some bubonic enlargement of glands and some rise in body temperature as to mask the real nature of the malady."

Severe Bubonic Plague.—The incubation period is generally between 3 and 7 days. The onset is generally sudden, prodromes when present being referable to the nervous system, headache, vertigo, staggering gait, lethargy, inability or refusal to talk, which, according to Jennings, is so constant as to be diagnostic, pallid face, suffused eyes, pain in the limbs, extreme weakness, intense malaise, tongue coated with red edges, later dry with mahogany color. Following these symptoms or from the beginning rigors or shiverings, there is rapid rise of temperature and pulse, skin dry, but not always hot; thirst and burning in the throat, sometimes nausea or vomiting which may be hemorrhagic. Constipation is the rule.

The fastigium is reached from the first to the third, rarely the fourth day, the febrile stage lasting from 2 to 5 days longer, ending by crisis, with occasional recurrence. The nervous disturbances pass to active delirium, or lethargy and coma.

Buboes or glandular inflammation constitute the most important and characteristic features

and are wanting only in cases rapidly fatal, especially in the pneumonic cases, and even here the autopsy reveals enlarged glands. Buboes with lancinating pains may be the first symptom; generally they appear after the first two or three days, are usually very painful, sometimes, however, insidious. At first hard, they may continue so in fatal cases, or gradually soften and suppurate, which has always been a favorable omen. Rapid disappearance or softening, now as in Defoe's time, is a fatal symptom.

Though affected by groups, one gland is usually more prominent, is generally the size of a walnut or almond, but may reach the size of an orange; the peri-glandular tissue is cedematous. Small hard glands are considered more serious than even a matted group of larger soft ones. The inguinal-femoral group is most often involved, the axillary next, then occasionally the cervical or submaxillary, and I recall having seen at least one case, a fatal one, of tonsillar involvement.

Gangrenous skin or so-called "carbuncles" and purpuric patches, large or small, the "tokens" of the Great Plague are not common but rare during this pandemic, though petechiae appearing just before death are common. Hemorrhages from nose, stomach, bowels, or kidneys are characteristics of the pneumonic and occur in bubonic cases. They are comparable to hemorrhagic forms of variola or measles, etc.

Primary Pneumonic Plague.—This should be distinguished from the secondary broncho-pneumonia which may follow this as other infectious diseases. This type is highly contagious, especially dangerous to contacts, such as nurses and doctors, is almost invariably fatal, and generally reproduces its kind. It is the form which spread by the Marmot, swept North China and Mongolia last year with a mortality of almost one hundred per cent. It is a lobular pneumonia; there are no prodromal symptoms, there is no primary bubo, the system seems to be simply overwhelmed by a poison to a degree out of all proportions to the auscultatory signs which are those of lobular pneumonia. The prominent symptoms are pleuritic pain, cough, and blood-stained sputum having no characteristic appearance but loaded with bacilli pestis, which are also found in the blood. Fever, respiration, pulse, are all more affected than we would expect from the area involved.

There is the same imperfect articulation and anxiety as in the bubonic form. The autopsy shows scattered foci in the lungs, inflamed bronchial glands, and greatly enlarged spleen.

The Septicaemic or Septic form is the result of an overwhelming infection, from which the patient generally dies before buboes are formed or, more correctly, before they are discovered. The symptoms are rigors, headache, vomiting, fever, extreme prostration, weakness, drowsiness, restlessness, small pulse, delirium, coma. There may be bleeding from the nose, kidneys, or bowels. Death may occur the first, second, or third day from collapse, or, if the patient survive, buboes may appear.

Prognosis.—Plague is the most fatal of all epidemic diseases—the mortality being from 50 per cent to 90 per cent for bubonic, 90 per cent to 100 per cent for pneumonic types. Hemorrhage in whatever form, petechiae or “tokens” are “lethal prognostics;” profound affection of the nervous system or abundance of bacilli in the blood are unfavorable, suppuration of buboes favorable, symptoms. The duration of fatal attacks is from one to five days; one who lives a week is apt to recover; the discharges from the buboes, urine, and feces, however, being dangerous for six weeks or more. One attack generally, not always, confers immunity.

Treatment for this, as for other asthenic fevers, is an overabundance of fresh air, keeping the patient prone, and stimulants, such as strychnine. A specific serum like diphtheria serum, prepared by inoculation of the horse, has been prepared by Yersin and others, which is of use in the early stage, probably from its action on phagocytosis, as Douglas found the opsonic index increased three fold, dropping, however, in 9 days, partially to bactericidal and antitoxic effects. Its usefulness is not comparable to diphtheria antitoxin.

Of much greater use is the vaccine prepared by Haffkine and others by using dead or attenuated bacilli to create active immunization. They are useful for the protection of disinfectors, nurses and doctors, but are of little use for a general vaccination.

Prophylaxis and Prevention of Plague.—The loss of life, or at the least the enormous commercial and financial injury suffered by any community afflicted with plague, should make us put our own house in order.

Practically, as plague is primarily a disease

of rodents, although its contagiousness in the ordinary sense is not denied, and that of the pneumonic form is emphasized, our efforts here should be directed against the host, the rat, of all kinds, and the carrier, the flea:

First. To prevent the introduction of the disease into the country. To this end the U. S. Public Health Service requires deratization by fumigation of vessels from Liverpool, all ports of Africa, Asia, including Japan, the South Sea Islands, including Australia, South America and the West Indies, and the use of rat guards and fenders to prevent the escape of rats to the shore. In addition to this, such articles of cargo from or coming through infected ports, as may harbor rats or fleas are required to be unpacked, and if necessary disinfected.

Second. Measures to be adopted by local authorities. The history of plague teaches us that quite unlike yellow fever or cholera, we should not expect a quick invasion, an explosion, and safety, but we must anticipate danger over long periods.

Municipalities should wage unrelenting war of eviction, starvation, and extermination, by providing rat-proof docks, and enforcing proper construction of market places, warehouses, stables, and, indeed, all buildings, by the intelligent use of concrete so that there may be no breeding places for rats. Ordinances should be enforced providing for the storage of garbage, manure, etc., and feed in tight containers, and the prompt removal of the former.

The use of poisons and traps are commendable more as temporary expedients and aids to the more radical measures.

With the rat will disappear his parasite, the flea, and with the two, the danger of the introduction, or at least the spread of bubonic plague. To quote Rucker, “First plague in rats, and then in fleas; then plague in man, and quick disease. No rats, no fleas, no plague decease.”

We, as sanitarians, indeed every good citizen, should paraphrase Cato and daily cry “*Mus, musca, pulex delendi sunt.*”

INTUBATION.*

By W. T. PARROTT, M. D., Kinston, N. C.

To Joseph O'Dwyar, of Chicago, belongs the credit of effecting this operation. With characteristic American ingenuity he devised a sys-

*Read in symposium before the Lenoir County, N. C., Medical Society.

tem of laryngeal tubes so effective that the old operation of tracheotomy is in most instances unnecessary. When one thinks of the gore and the tremendous death rate resulting from tracheotomy and its sequelae, i. e., broncho-pneumonia, infections, etc., of the respiratory tract, he thinks of Joseph O'Dwyar in a very kindly manner. I do not recall a condition so pathetic as a child dying from laryngeal stenosis. I do not recall an operation so unproductive of results as tracheotomy. On the other hand, I do not know of an operation so immediately satisfactory as that of intubation. Even in skilled hands, my observation of tracheotomy, both in hospital and private practice, has been a tremendous death rate.

After tubing the larynx over fifty times during the last thirteen years, I have only seen one death, and that occurred in a child who coughed up the tube, and tracheotomy was afterwards performed, much against my judgment, although we could not do much better in this case, as another tube could not be obtained in time. Tracheotomy has been disappointing to me, and I have learned to think the operation criminal if intubation is possible.

The operation is a simple one, but requires much experience. There have been many rules formulated, and many landmarks and guides suggested for its successful performance. For a time I followed them, and in a rather clumsy manner. To-day I have no landmarks, no rule, except to gag the child, pass my left index finger down the throat, hook forward the epiglottis and pass in the tube. If one is not sure that he has the epiglottis hooked forward, let him carry his finger backward for an instant and hold it over the rima glottidis, and in that way he quickly assures himself of the orifice.

Operation.—I have especially trained a nurse for this operation and the future care of the patient, because my experience with intubation is that a successful outcome depends as much on the proper handling of the case as in the proper introduction of the tube. The nurse always handles the second case of intubation much better than her first case, her third much better than her second, and as experience accumulates she becomes more proficient in the care of those cases. With this nurse I hardly ever find it necessary to give directions during the operation or afterwards, as she assumes full charge. I send her to a case if possible ahead of me;

she loosens the child's clothing around the chest, ventilates the room as quickly as possible, wraps a sheet or blanket around the child's body and pinions the child's arms to its side. An assistant, here let me add, is much better than the child's father or mother, who are invariably requested to leave the room.



A. T.—Intubated January 10, 1912.

Case 1.—A. T., age 4.—Showing correct position in inserting tube.

The child is placed on the nurse's knee; the assistant, standing at the back, steadies the head and retains the gag. I pass my left index finger down the throat, hook forward the epiglottis, the right hand grasping the holder and obturator, and the tube is passed down under the left index finger and in the rima-glottidis, the operation being completed in thirty seconds. At times, however, it has taken me several minutes, due sometimes to poor assistance in steadying the head, and again an intractable child, and in other cases to hypermia of the rima

glottidis. In one case we tried as long as one-half hour, and were entirely unsuccessful, and tracheotomy was performed, but at the post-mortem, a tumor of the larynx was found to be the cause of the occlusion.

Instruments.—I use the set originally designed by O'Dwyar, whose ingenuity in so doing has been to the world the greatest boon that American medicine or surgery has ever contributed. The instruments consist of a mouth gag, a handle holder, an obturator and extractor,



W. B.—Intubated November 29, 1911.

Case 2.—W. B., age 3.—Showing method of feeding.

and metal tubes covered with hard rubber.

Indications.—In any case of progressive dyspnoea with episternal retraction, cyanosis, cold extremities, etc., the tube is indicated. I do not believe in an early tubage; in fact, O'Dwyar himself was much opposed to an early tubage, and did it only as a dernier resort, but I think the consensus of opinion of men who were per-

sonally associated with him, and have perhaps done more intubations than O'Dwyar, now agree that intubation should be done much earlier than was formerly thought necessary. If a child is allowed to go on with a cyanotic condition and labored breathing too long, his resistive powers are so much reduced that his chances for recovery are much less than if an early tubage had been tried. I believe many of these cases die of carbon dioxide poisoning.

Extubation.—Extubation is, as a rule, much more difficult than intubation, especially where granulations have appeared around the top of the tube and are holding it down. Usually in these cases, when I cannot get the instrument within the tube, I hang the child by its heels and milk the larynx downward.

Dangers of Intubation.—In my series of cases, I have fortunately never met with an accident. A great danger to my mind is pushing down a large quantity of mucus, and this is one that O'Dwyar himself feared most, although I think the greatest danger is the establishment of false passages. I should much prefer to take the risk of cyanosis, by holding the finger over the rim of the glottis too long, than to take the risk of establishing a false passage in the chink of the glottis.

Feeding.—The method generally used in this country is that of Castlebury, of Chicago, although I greatly prefer rectal feeding, using pre-digested milk every five hours. The child is laid with its back on the nurse's lap and food fed to him in this manner. I have yet to have a case of pneumonia resulting from food passing in the tube, and I have always brought my patients through well nourished. When for any reason I remove the tube, as for washing, or if it is coughed up, I invariably take advantage of this opportunity to feed my patient and allow it to take milk in large quantities in a sitting position, waiting as long as possible to reinsert the tube. Figure 2 is photograph of a case showing Ball's method.

Tube Washing.—During the first twenty-four hours after the tube is placed *in situ*, the operator should see his case at least every four hours, because the tube has generally to be taken out, washed and re-inserted every four hours. I have yet to see a case in which the tube did not require washing every four hours during the first twenty-four. During the second twenty-four hours, it may go as long as from six to eight

hours without washing; during the fourth and fifth, twelve hours will be as often as the tube will need cleaning. In a case winter before last, I left the tube in from Thursday morning until Monday, when my patient was so much improved as to make it entirely unnecessary to continue its use.

I beg herewith to report two cases as typical.

Case 1.—A. T., age 4 years. Seen January 10, 1912, in consultation with Drs. Weyher and Hargrove. Child had severe laryngeal diphtheritic infection. There was much retraction of the episternal notch, with progressive dyspnoea, and very labored breathing. Face covered with perspiration and very cyanotic. He was given ten thousand (10,000) extra units antitoxin and the tube inserted. The respiration at once improved, the cyanosis disappeared, extremities became warmer, and the child made an uneventful recovery. It was interesting to note that in this case the tube did not require washing oftener than twelve hours after first insertion. His photograph (figure 1) shows correct position in insertion of tube.

Case 2.—W. B., age 3 years. Seen about November 29, 1911, with Dr. W. F. Hargrove. Clinical observation indicated laryngeal diphtheria. This was verified in the laboratory. A progressive dyspnoea, marked retraction of the episternal notch, severe cyanosis and cold extremities caused the attending physician to advise intubation. Ten thousand units were first given intravenously, followed by ten thousand more subcutaneously and the tube inserted. The child made a pretty recovery. In this case, the tube required cleaning every four hours, sometimes every two, as it so quickly became clogged. His photograph (Figure 2) shows Castlebury's method of feeding.

GASTRO-INTESTINAL DIAGNOSIS FROM THE X-RAY STANDPOINT.*

By HENRY K. PANCOAST, M. D., Philadelphia, Pa.

The term X-ray diagnosis of gastro-intestinal lesions is, in a certain sense, a misnomer, for the reason that we are apt to regard the use of the X-ray in this connection as an exclusive method of determining the presence or absence of pathologic conditions of the stomach and bowel, without dependence upon other methods.

The impression still prevails to a certain extent that this is an independent means of diagnosis, practically infallible in certain of its applications, and capable of fairly uniform, positive and dependable information in others. It is admissible that in connection with fractures and dislocations and the detection of opaque foreign bodies the X-ray examination is entirely dependable in itself for diagnosis when properly and skillfully carried out. The same may be said in regard to the diagnosis of renal or ureteral calculi, admitting the possibility of error to be less than five per cent. In the case of the gastro-intestinal tract, however, if we exclude gastropnoia and enteropnoia, in which it may be possible to render a definite and exact diagnosis by the X-ray alone without the aid of clinical data or further previous knowledge concerning the patient than would lead to an examination of the structures involved, there are comparatively few instances in which the knowledge gained without any knowledge of clinical facts can be regarded with the same amount of reliance as we are in the habit of placing upon the Roentgen diagnosis of fractures or calculus. If we are to regard it in the proper light and use it to best advantage, we must consider the X-ray as a means of obtaining valuable supplementary evidence with which to strengthen or confirm the clinical diagnosis.

It has long been the earnest endeavor of every Roentgenologist who does work of this kind to impress such facts upon the minds of the rest of the profession, but as yet without complete success. It is always advisable, and usually essential for the best results, that the Roentgenologist have some preliminary knowledge of clinical facts upon which to base his work, and yet it not infrequently happens that a patient is referred to us with some such request from his physician as to look for a cause of pain on the right side of the abdomen, and without any data being supplied to lead one to believe that a previous clinical examination has been made.

The Roentgenologist aims to be more than a mere photographer for the clinician, and he should be a clinical diagnostician to a certain extent, but it would seem too much to expect him to be an expert diagnostician as well as an X-ray expert. The busy Roentgenologist doing general work has not the time to do both well, and it is not fair to either the patient or to him

*Read before the forty-third annual meeting of the Medical Society of Virginia, at Norfolk, October 22-25, 1912.

to expect him to make a complete clinical examination, including urine and gastric analyses, perhaps, and possibly a blood examination, and to include all of these procedures with an X-ray examination.

If an examination of the abdomen is to be made, the Roentgenologist should know at least whether the urinary tract or the gastro-intestinal tract, or, perhaps, both, are to be studied. If it is to be the gastro-intestinal tract, all possible data having any significant bearing upon a differential X-ray diagnosis should be furnished, including a report of the gastric analysis if it has any bearing, as this may be very essential in differentiating between a gastric carcinoma and an ulcer, for instance.

Of equal importance with the examination itself is the correct interpretation of the X-ray findings. Examinations such as these, especially, should be regarded and carried out as consultations. After the Roentgenologist has made his observations by the screen and studied his plates carefully, and has made his own deductions, he may be ready to submit his final report, but it is frequently advisable to confer with the clinician or surgeon, so that the case may be viewed from every aspect at the same time by all of those concerned.

The first important practical applications of the X-ray study of gastro-intestinal pathology were in connection with visceroptosis, and all of us realize what assistance Roentgenology has rendered medicine and surgery in determining the size, position and motility of the stomach and large bowel. Next, an occasional diagnosis of advanced carcinoma or old ulcer scar was hazarded. Rapid improvements in the technic of radiography and fluoroscopy, and the devising of apparatus whereby the latter method could be employed with entire safety have been responsible for unusual progress in gastro-intestinal studies, and have opened up a wide and important field. We are now able to examine a case of suspected gastric carcinoma with reasonable assurance of rendering valuable assistance toward establishing the correct diagnosis. Further than this, a few of the most skilled Roentgenologists are now able to submit definite and exact reports in connection with cases of suspected gastric ulcer of recent origin or small extent.

Safe fluoroscopic technic has now rendered it necessary to make a physiologic as well as an

anatomic study of the stomach and bowel in order to complete the X-ray examination. The important advantages of fluoroscopy are the study of gastric peristaltic movements and the effects of lesions thereon, the effects of constrictions and obstructions of various kinds upon the passage of bismuth contents through the bowel, and the fact that it enables us to study, and if necessary radiograph, the organs and their functional activities at certain critical stages that are of particular advantage.

It would be impossible in this discourse to discuss the entire subject of gastro-intestinal diagnosis in all its details. Only the more important phases will be taken up. In connection with the stomach, the most important conditions to be considered are carcinoma, ulcer, and especially cicatrices following old ulcers, perigastric adhesions, and gastropptosis. The latter is now a subject almost too old to need further discussion from the X-ray standpoint, and will be omitted.

In cases in which the diagnosis is more or less obscure, it has been our custom of late to follow the technic proposed by Holzknecht of giving the double bismuth meal. The first meal is given six hours before any examination is made, say at 8 A. M., and six hours later the patient is examined to determine whether there is any retention in the stomach, how far the bismuth has advanced in the large bowel, and whether any still remains in the ileum. Subsequent examinations are made as necessary. A bismuth residue in the stomach after six hours is regarded as abnormal and means retention from some cause. Simple atony of the gastric walls may give slight retention, but marked retention means actual obstruction, either organic or mechanical, or pyloric spasm, although the latter does not always cause retention for six hours. Here we may cite an instance in which knowledge of clinical facts becomes essential for correct interpretation. For instance, hyperacidity with retention points more to spasm, while subacidity or anacidity are likely to be associated with organic obstruction or to loss of motility arising from involvement of the pyloric region by lesions such as carcinoma or old ulcer scars. Morphin may cause retention and should not be overlooked.

The position of the bismuth column in the large bowel may be of some assistance in drawing conclusions. Normally it should have

reached the hepatic flexure or just beyond, the cecum should be filled, and the ileum may or may not contain some bismuth still. If there is no obstruction at the pylorus or in the duodenum, subacidity or anacidity are likely to be found associated with hypermotility of the stomach and with the large bowel as well.

After these observations have been made, the second bismuth meal is given and the stomach is examined for position, size, peristaltic movements and defects in the filling of any portion. For the detection of carcinoma or old ulcer scars it is essential to find some defect in the filling of the portion of the organ involved, or to note some effect of the lesion upon the peristaltic movement, or both. We are unprepared as yet to make any statements of personal experience in the diagnosis of recent ulceration. Perigastric adhesions may influence peristaltic movements, cause defects in filling, induce pyloric or duodenal obstruction directly or indirectly, or may noticeably effect the shape, position or movability of the stomach.

The following cases have been selected as illustrating the more important gastro-intestinal conditions that belong within the realms of X-ray diagnosis:

CARCINOMA OF STOMACH.

1. Large carcinoma, body of stomach. This was an X-ray diagnosis entirely, as there were no direct clinical signs of carcinoma, which was hardly suspected as a possible condition. Confirmed by operation two days later, and partial gastrectomy performed. Note the small projection of the bismuth shadow into the clear area of the growth. This was found to be due to a crater in the latter.

2. The same case nearly four months after operation. Patient had pain and periodic retention. X-ray diagnosis was made of possible recurrence in scar, and was confirmed at second operation. As metastasis had occurred, the case was inoperable further.

3. Extensive carcinoma stomach. Palpable mass. Operation was refused. Extension had evidently caused obstruction beyond in the duodenum.

4. Extensive carcinoma pyloric portion of stomach, not causing obstruction. Palpable mass. Considered inoperable.

5. Carcinoma pyloric portion of stomach without obstruction. Confirmed at operation, but inoperable further than exploration on account of extension.

6. Carcinoma pyloric portion stomach without obstruction. Palpable mass freely movable. Diagnosis based largely on X-ray findings before gastric analysis was made.

7. Same case, five minutes later, patient lying on right side to demonstrate movability of growth.

8. Same case, two and one-half hours later, showing stomach nearly empty and collapsed, with no retention. Area of growth has dropped downward and to the left.

9. Same case, seven and one-half hours after first radiograph, to determine relations with transverse



Fig. 1.—(Illustration No. 29.) Case of suspected ptosis of the cecum. The erect radiograph shows this condition to be present with ptosis of the entire colon. The appearance suggests the possibility of adhesions between the transverse colon and cecum. (See Fig. 2.)

colon. Area of palpable mass outlined by wire corresponding with location at last examination, but lower and more to left than at first. Colon is below growth, and there is no obstruction in the bowel.



Fig. 2.—(Illustration No. 30.) The same case examined while lying on the left side. Note that the transverse colon drops away from the cecum, proving the absence of adhesions. This position also shows that the cecum is not movable.

Note that the bismuth has passed further than usual through the large bowel, which conforms with the claim that hypermotility of the large bowel is commonly found in such cases. The X ray findings were all confirmed at operation, but metastasis prevented removal of the growth.

GASTRIC RETENTION.

10. Case of extreme gastropnothis, with dilatation and retention, illustrating examination by double bismuth meal method. This slide shows considerable retention six hours after the first meal, and due to mechanical obstruction and atony. Note head of bismuth column in cecum and tail in ileum.

11. Same case after second bismuth meal.



Fig. 3.—(Illustration No. 31.) Case in which the erect radiograph shows ptosis of the colon and cecum. Cecal adhesions and cecum mobile are also possible conditions from this radiograph. (See Fig. 4.)

"HOUR GLASS" CONSTRICTIONS.

12. Case of "hour glass" constriction of stomach due to old ulcer scar and adhesions. Exact appearance duplicated at a subsequent examination, and diagnosis confirmed at operation.

13. Case in which this first radiograph suggested an "hour glass" constriction. This was not confirmed by screen examination, which showed very slow peristalsis with deep contractions along the greater curvature, but with little, if any, along the lesser until near the pylorus.

14. Same case, proving radiographically that the appearance first suggesting "hour glass" constriction was due to a peristaltic wave.

EFFECTS OF ADHESIONS—STOMACH AND DUODENUM.

15. Case of perigastric adhesions following operation for removal of gall stones. Condition suggested by position of stomach to right, drawing of greater curvature to right, and absence of free movability. Confirmed at operation.

16. Case of enormous distention of duodenum, cause not determined. Note vigorous gastric peristalsis.

17. Case of partial duodenal obstruction regarded as result of adhesions or possibly old ulcer. Note retention in stomach six hours after first meal, and head of column at hepatic flexure. Note also the appendix filled with bismuth.

18. Same case, after second bismuth meal, showing distention of duodenum. Diagnosis was suggested at

this examination. Stomach of normal size, without ptosis.

19. Same case, eighteen hours after second meal, showing some dilatation of cecum, ptosis of right side of transverse colon, and appearance suggesting adhesions between transverse and ascending colon and transverse colon and cecum. Appendix still contains bismuth, but tip has emptied somewhat.

20. Same case, patient lying on left side, just after last radiograph. Note that the supposedly adherent portion of the transverse colon remains in close apposition with ascending colon and cecum. This further suggests but does not prove adhesions, because the ascending colon has fallen down to the left with the transverse portion instead of holding it up.

21. Same case, at a later examination of the stomach to confirm the findings in connection with the duodenum. X-ray findings confirmed at operation, gall bladder adhesions found constricting the duodenum. Note bismuth still in the appendix, remaining seventy-two hours, which is regarded as abnormal. Appendix was removed.

DUODENAL ULCER STENOSIS.

22. Case in which X-ray findings suggested duodenal obstruction. This radiograph, made six and one-quarter hours after the first bismuth meal, shows gastric retention, with blockage in the duodenum. Findings confirmed at operation, showing old ulcer stenosis.

23. Same case, after second bismuth meal. Note appearance of duodenal cap.

THE LARGE BOWEL.

The following cases are offered in illustration of a group which present the clinical aspect of chronic constipation or colitis resulting therefrom. In many of these cases there is much to be learned by the X-ray examination that may aid very materially in



Fig. 4.—(Illustration No. 32.) The same case examined while lying on the left side. Note the changes in positions of the cecum and transverse colon, showing the presence of cecum mobile and the absence of cecal adhesions.

establishing the clinical diagnosis of the exact or the important contributing cause of the symptoms present.

24. Case in which X-ray examination suggested cecal adhesions, although symptoms pointed entirely to the left side as the seat of trouble, and where the

bismuth column seemed to stop. Examination could not be completed on account of operation. This radiograph was made only four and one-half hours after the bismuth meal, showing no blockage on the right side. These findings confirmed at operation. Adhesions found on right side as suggested, and also around splenic flexure, and were released at each place.

25. Case in which cecal adhesions were suspected clinically, and suspicions confirmed by X-ray examination. (Eighteen hours after meal.) No operation yet.

26. Case of suspected cecal adhesions, five years after appendectomy. X-ray examination corroborates clinical diagnosis. Confirmed at operation. (Nineteen hours after meal).

27. Case of obstruction just beyond ptosed hepatic flexure, probably due to adhesions, the clinical diagnosis aided by the X-ray findings. This radiograph was made eighteen and one-half hours after the meal.

28. The same case, twenty-four hours later, or forty-two hours after the meal. Note the slow passage of bismuth through the point of probable constriction. Operation advised.

29. Case of suspected ptosis of the cecum. Examination shows ptosis of cecum and entire colon. The appearance suggested the possibility of cecal adhesions.

30. The same case, examined while lying on the left side. Note that the transverse colon falls away from the cecum, showing the absence of any adhesions binding them together. The cecum does not seem to be movable.



Fig. 5.—(Illustration No. 37.)—Case of redundant sigmoid, showing an important factor in the cause of the obstinate constipation.

31. Case in which examination showed ptosis of the colon, and strongly suggested movable cecum. Erect posture, eighteen and one-half hours after meal. (Very little in cecum when examined six hours after the meal).

32. Same case, examined while lying on the left side, and directly after the preceding exposure. Note the change in the position of the cecum.

33. Case of suspected post-operative adhesions on left side. This radiograph in erect posture suggests adhesions between transverse colon and sigmoid.

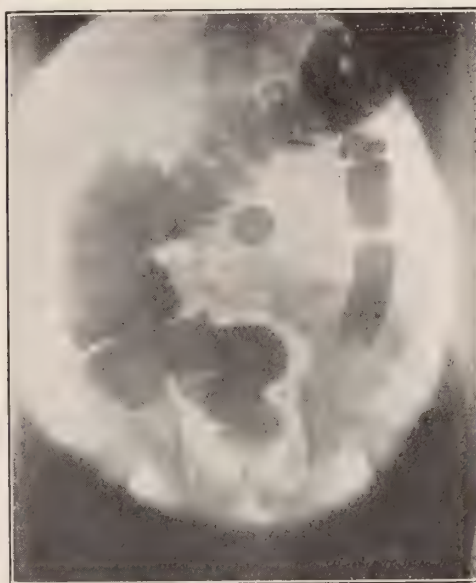


Fig. 6.—(Illustration No. 40.) Case of partial obstruction in the large bowel resulting in marked dilatation of the cecum and transverse colon, and due to thickening and rigidity of the walls of the descending colon. This radiograph shows no evidence of obstruction following a bismuth enema, whereas bismuth given by mouth stopped at the splenic flexure, probably due to deficient peristalsis beyond. Male, aged 13.

34. Same case, recumbent posture.

35. Case of ptosis of colon and redundant sigmoid. This radiograph shows the ptosed colon.

36. Same case, showing the redundant sigmoid.

37. Another case of redundant sigmoid. (Constipation relieved by proper use of purgatives).

38. Case of boy, aged thirteen, with supposed obstruction in descending colon. At a previous operation a greatly thickened descending colon had been found, according to report. This examination, eighteen and one-half hours after the bismuth meal, shows stoppage of bismuth at the splenic flexure.

39. Same case, after administering bismuth enema, showing no evidence of obstruction in suspected portion of gut, but a marked dilatation of the cecum and transverse colon. The cecum could be observed clinically at times. The enema was readily taken. Radiograph twenty minutes later, in erect posture.

40. Same case, directly after last exposure, recumbent posture, plate posterior, to show sigmoid, which appears normal. Note the apparent twist at the splenic flexure, which was regarded as a very remote cause of obstruction, but was not found at the time of operation. The absence of haustra in the descending colon was regarded as somewhat significant especially in view of the history of previous operative findings. At operation no obstruction was found, the only abnormality being a thickened descending colon. This probably acted as an obstruction by its rigidity and interference with peristalsis, but the liquid bismuth enema could readily pass through by the slight force of gravity.

3400 Spruce Street.

THE ROENTGEN-RAY IN THE DIAGNOSIS AND CONTROL OF FRACTURES.*

By JAMES W. HUNTER, JR., M. A., M. D., Norfolk, Va.

The recognition and proper treatment of fractures is one of the most important subjects in the realm of surgery, for it is the bones that support and protect the living tissues, and it is to their function as levers that we are enabled to walk and to work. We thus become productive units of society. If the individual be so unfortunate as to become the victim of an injury, it becomes most important to determine the extent of his injury. A rest of a few days is generally a sufficient treatment for an ecchymosis; if, on the other hand, there is a fracture, some sort of dressing must be applied in order to obtain fixation and rest for the wounded part. The diagnosis, then, is all-important.

There is nothing so keenly appreciated by the laity as a bad cosmetic or functional result in the treatment of a fracture. Few traumatic injuries play such an important role in our courts of law. If only the plaintiff can establish with certainty a fractured bone (no matter whose the fault) he considers his case already won. Nor is the surgeon exempt from malpractice suits. Malingerers and blackmailers arise on every hand; the attendant must protect himself, as well as to render his best services toward the patient, for, though the law does not require from every man the highest professional skill, it does require the best that we can give. It is so easy now-a-days to prefer charges of incompetency and inattention that we, as medical men, should be prepared for any emergency. And in no department of our art is this so inherently true as in the management of a fracture.

Upon the other hand, there is nothing that gives so much pleasure to the patient or pride to the attending surgeon as a good result in the case of a fracture. Yet it is often merely the element of luck. Can we, as scientific men, afford to take such chances? It is only upon the correct diagnosis and control of any case that the best results may be obtained; more especially is this true of fractures. To the careful surgeon no detail is too trivial. I am often struck by the superb work of certain of our well-

known surgeons. But when I recognize that these same surgeons require the highest perfection of diagnostic skill from their assistants and approach each case only after all factors have been considered, I cannot wonder at the uniform excellence of their results.

It is our duty as physicians to consider man merely in his economic sense as a productive agent in society. When he becomes sick he ceases to produce and becomes a drain. The whole object of any treatment is to restore the individual to productive usefulness as soon as possible with the most perfect cosmetic and functional results that may be obtained. In no department of our art, as we have just remarked, is this so true as in the case of fractures. It is the very mechanical action of our bones as protectors and levers that makes possible our high attainments. We must diagnose the trouble, obtain the nicest and most perfect approximation and minimize the results of shortening and callous formation. This calls for care both in diagnosis and treatment; furthermore, it requires constant and routine examination. For the best results can be obtained in no other way.

The great question is constantly arising, now that a satisfactory asepsis can be obtained, whether a fracture should or should not be operated upon. To this the greatest surgeons have given much time and attention. And while it is now the consensus of opinion that fractures of the long bones and otherwise simple fractures should be treated by extension and splints, it becomes most important as to what we must do in the case of the joints. To fix them, we shall run the risk of callous formation with a danger of ankylosis or impaired motility; yet, on the other hand, the eternal danger of destroying the synovial membrane constantly arises. The period of election lies from the fifth to the twentieth day after the injury. We must decide within this time. It is again largely a question of diagnosis; the greatest skill is none too good.

But it is right here that the ordinary methods of examination fail. Pain is most misleading; bad fractures often exist with comparative ease; some ecchymoses are most distressing. Modified function is as true as of any other inflammatory process. Appearances are often faulty. Time and again have I seen swelling and bruises of such an extent as completely to obscure all other symptoms. Crepitus, to my

*Read, with an exhibition of some fifty fractures X-rayed, before the Seaboard Medical Society, December 12, and the Surgical Section of the Norfolk County Medical Society at its December, 1912, meeting.

mind, is our greatest bugbear. It is only to be obtained by the most careful manipulation and often converts a green-stick into a complete fracture, or, as in the case with some hip and shoulder deformities, an impaction into a false joint. We thus lose the protecting influence of nature and do our patients much harm. Thus the usual methods of examination fail; it is only the hypermotility of a complete fracture that absolutely and accurately satisfies.

With the advent of the Roentgen-ray, however, and the perfection of its technique, we have an easy, painless and absolute method of diagnosis. We know at once where the trouble lies. We know whether or not a fracture exists. If there is none, a rest of a few days with some soothing application is, in general, all that is required. If, on the other hand, a fracture is present, it must be reduced and dressed. A second examination should then be made, and in my opinion, to insure the best results, another at each and every dressing. Nor should the part be examined in only one position. We must remember that we are dealing with shadows; as many positions should be employed as is convenient. In the case of a joint, at least two plates should be made, the one at right angles to the other. In extreme cases the stereoscope must be called into play, as it is here that we can obtain an idea of perspective, and act accordingly.

Nor is this all. In the Roentgen-ray we have a method of knowing just how the process of repair is progressing, as lime salts are normally found in the callus in from six to eight weeks and the deposition is complete in from sixteen to eighteen weeks. With a good radiograph we can tell approximately the time elapsing since the injury, which is of much legal value.

Again, it is most important to know the results of an operation for fracture. The increasing use of metal splints and of bone grafts has made both a source of great care and anxiety. We must know whether healing is taking place as it should, or if our results are to be disappointing, a non-union or necrosis,—all of which is easily answered by a Roentgen-ray examination, and it thus becomes of paramount importance in the surgery of the bones.

It is not the intention of this paper to discuss the technique of the actual examination. Yet I must say in passing that the great danger incurred in the use of the fluoroscope is rapidly

being overcome. New and improved methods are being perfected for the protection of the operator. Yet, upon the other hand, the use of this instrument is disappointing. It will not give complete and accurate detail. The best and most satisfactory results are only to be obtained from carefully exposed and developed plates. Speed is here the one essential; we must eliminate the unconscious movement of the patient; particularly is this the case with children. Hence the employment of rapid plates, powerful excitors and heavy tubes.

I would again call your attention to the fact that the ordinary methods employed in the examination of fractures are unsatisfactory. Here, as elsewhere, the "educated touch" must give way to instruments of precision. The clinical thermometer has succeeded the touch in the estimation of temperature, the sphygmomanometer is employed in the estimation of pulse tension. The "educated touch" in the diagnosis of fractures is only a snare; it must yield to the Roentgen-ray. In this we have a thorough and perfect method for the diagnosis and control of fractures. Armed with a series of good plates we are possessed with the knowledge of the exact condition prevailing. More, we are prepared to defend the rights of ourselves and our patients against all harm and to restore them to society as productive agents at the earliest opportunity.

THE SURGICAL TREATMENT OF RETROCAL- CANEAN BURSITIS (ALBERT'S DISEASE.)

By CHAS. S. WHITE, M. D., Washington, D. C.

Retrocalcaneal bursitis, as the name indicates, is an inflammation of the bursa lying posterior to the os calcis and anterior to the tendo Achilles. Albert's disease, Achillo dynia are synonyms, but imply little, and could easily be dispensed with. Very little space has been allotted to it in text-books or current medical literature, and, indeed, it has been difficult to get any accurate description of the normal bursa, possibly because it has had little clinical significance, and it is the hope of focusing attention upon this structure and getting more light, that the author has believed to justify the report of a case. It was first described by Albert of Vienna in 1893, and while the history of his cases were those of retro-calcaneal bursitis, he failed, in the light of subsequent

investigation, to determine the etiology. He was of the opinion that acute trauma was essential as a factor, and believed inflammation of the cellular tissue about the tendo Achilles, or a periostitis, was the chief lesion. Max Muller, of Berlin, saw a few cases, and he settled the pathology definitely by surgical measures. He found by injections and open operations that the seat of the disease was in the bursa, almost an invisible structure in the healthy state, but hypertrophied when diseased.

The normal bursa is a most elusive anatomical structure, and a number of sections of the foot have failed to show a well defined endothelial lining or wall. It is about the size of 1 inch by 1-8 inch oval, the upper border being on a slightly lower level than the upper border of the os calcis. It appears as fat, loosely retained between the os calcis and tendon, with a narrow cavity within holding a very small quantity of serous fluid. This cannot always be seen post-mortem. It has been stated that the capsule develops from the periosteum and sheath of the tendon. Quain's anatomy, in a paragraph upon bursae, says: "In other places less defined spaces exist in the connective tissue between the parts of the tendon or fascia. In chronic inflammation of this bursa the capsule can be easily picked up in forceps." The bursa seems to be a new formation springing from a scarcely discernible beginning, then develops into a full-fledged hygroma, as a bursal cyst is called. Rossle, in 225 dissections, rarely found the bursa normal.

The etiology of retro-calcanean bursitis is well understood, and chief among the causes are badly fitting shoes, abrupt or continued irritation, especially about the heel, and infection through a minute fissure in the skin of the region. Excessive use of the part, such as bicycle riding, is not uncommon. More remote conditions which play a part are tuberculosis, gonorrhea, rheumatism and the infectious diseases, but these are more possibilities than probabilities.

It has been thought that flat foot played a role in the causation, but, while it is not an unusual accompaniment, Albert's disease may be, and often is, independent of pes planus.

Irregularities in the posterior surface of the os calcis, while seen occasionally, are also present in normal individuals.

The pathology is that of hyperplasia of the

capsule and excessive secretion. The gland never reaches an enormous size, and one the size of an almond may be considered large. Tubby states that a hygroma may undergo any of the following changes:

- a. Hemorrhagic degeneration;
- b. Fibroid degeneration;
- c. Tuberculous infection.

The symptoms are quite typical, but an attending flat-foot is likely to be misleading unless we are posted. The patient consults his physician because he suffers pain in the feet upon standing or walking, but is relieved by sitting or lying down. Rest in bed over night affords some relief, but toward evening the pain is constant and almost unbearable. He may be unable to walk more than a few blocks without rest, and some patients are totally incapacitated. The pain is not confined to the heel, but radiates sharply up the calf and down into the sole of the foot.

The gait is almost characteristic. If the shoes are removed and the patient is directed to walk, he will take short steps and keep the weight mostly on the ball of the foot, the heels only touching the floor lightly, if at all. In other words, he keeps the foot in plantar flexion, as much as possible, because dorsal flexion, such as employed in a long natural swing, compresses this tender bursa and elicits pain. The patient finds walking on tip-toe nearly painless, while walking upon the heels is painful, if not impossible. The history will be that of pain coming on slowly, aggravated by walking, relief at night and worse during the day, extending over some months. It may be possible to learn that ill-fitting shoes have been worn, and much walking or other exercise indulged in. Acute trauma is rarely noted.

Upon examination of the part, a smooth swelling is seen between the os calcis and the tendo-Achilles, slight in extent and shading off into the surrounding tissues. It seems to blend with the os calcis. To the touch it seems fixed, especially to the os calcis, but is resilient in the non-suppurative or the common type. Pressure upon it causes pain definitely localized. If the heel is grasped in one hand and with the other the foot is forced in dorsal flexion, pain is brought out. Any movement which brings the tendon closer to the os calcis will surely pinch the bursa, and pinching the bursa causes pain. The swelling varies somewhat in the same in-

dividual, depending upon the abuse the diseased part is subjected to.

All authors emphasize the obstinacy of the disease, but only a few have recommended surgical measures. It is a condition that improves upon rest, and recovery would probably ensue were the patient able to carry out the treatment for a long period. External applications have been disappointing; incision and drainage and injection of iodoform emulsion have proved efficacious but tedious.

The treatment the writer wishes to suggest is complete removal of the bursae, inasmuch as it is a simple operation and the results are prompt and satisfactory. Upon the inner side, an incision about three (3) inches long, with its center over the gland, is made between the tendo-Achilles and the os calcis, parallel to the tendon. The foot is held by an assistant in extreme plantar flexion, and with a knife or scissors, the bursa, with retraction of the tendon, can be dissected without injury to any important structure. Sharp processes of the os calcis can be chiselled away, but this is unnecessary. The wound is closed without drainage and the foot put up in slight plantar flexion or foot drop, with a starch or plaster bandage for about eight (8) days, at the end of which time the dressing may be changed, passive motion started and the foot allowed to assume a natural position. The patient should be allowed to walk at the end of twelve or fourteen days, but this will be painful for awhile. At the end of three or four weeks recovery is usually complete.

The following case was referred to me by Dr. Whitson, of Washington, and the first I have treated by the method outlined in this paper:

G. B., 25 years, male, salesman. His family history is negative, especially with reference to tuberculosis in its commoner forms.

Previous history.—He had pneumonia at the age of ten and again at fifteen, making a good recovery in each instance. He has never had venereal disease.

Present illness.—In May, 1910, he complained of stiffness about the heels and ankles, but which improved a little after walking. His occupation kept him on his feet, but the improvement was of short duration, and he soon found that exertion increased the pain and

produced a slight swelling just anterior to the attachment of the tendo-Achilles.

In July, walking became painful to such a degree that it was almost unbearable. He then consulted several physicians, and for the following year was treated for rheumatism, neuritis and flat-foot, without improvement. When examined in August, 1911, he showed a distinct swelling over each retrocalcaneal bursa, and tender upon pressure. His most comfortable gait was a short step, and upon the toes. A long stride was intolerable.

On August 21, both bursae were removed under a general anesthetic. He was kept in bed two weeks, with the feet in slight plantar flexion by a light cast. Three weeks later he was able to walk in comfort, and has not been incapacitated since.

911 Sixteenth Street, N. W.

TUMOR OF BRAIN, INVOLVING OCULAR MUSCLES.*

By C. R. DUFOUR, Phar. D., M. D., Washington, D. C.
Clinical Professor Ophthalmology, Otology, Rhinology
and Laryngology, Georgetown University
Medical School and Hospital.

Mrs. W., a middle aged woman, was referred to me for examination and treatment for her eyes. Upon examination, I found a complete paralysis of the muscles supplied by the third, fourth and sixth cranial nerves, an exophthalmos and optic atrophy, all on the left side. I obtained a specific history. She had been operated upon some months previous for empyema of left maxillary antrum, the opening being made through the second molar. There was free drainage when I saw her.

The antrum was kept washed out with boric acid solution and I gave her saturated solution of potassium iodide,† 30 drops t. i. d. After getting her under the full effects of the potassium iodide, I gave bichloride of mercury, hypodermically, t. i. d. There was no benefit obtained from this treatment. In three months after I first saw her, she began to complain of intense pain in her head, which at first yielded to anodyne treatment; however, it soon became constant and nothing but injections of morphia, which had to be gradually increased, would allay it. Neither she nor her family

*Read before the Medical Society of Northern Virginia, at Leesburg, Va., May 15, 1912.

†This case occurred before the general use of salvarsan.

would consent to an operation. They insisted that I do what I could, without operation.

About this time there began to be symptoms of loss of sensation on side of face and anæsthesia of the cornea. The conditions continued without abatement. She had periods of hallucinations. The analysis of the urine was amber in color, cloudy precipitates, acid reaction, trace of albumen, a few epithelial cells, and some pus was found. Her condition gradually became worse, her right eye began to show symptoms of beginning atrophy of the optic nerve, and an external squint became manifest.

The patient became weaker and weaker, her mind wandered, word deafness became manifest, and finally she died. The family consented to an autopsy. The brain was put in a two per cent. solution of formalin for a couple of days. Examination was as follows: gumma of dura mater in the anterior part of left middle fossa; this involved by extension the left anterior temporo-sphenoidal lobe; the growth surrounded the internal carotid artery, exerting pressure on the cavernous sinus, and involved the left optic nerve at the commissural origin; there was considerable edema of the left anterior sphenoidal lobe. A second and smaller gumma involved that part of the brain mass which constitutes the left olfactory convolution; the third and smallest gumma lay in the angle of the right optic commissure. The bone around the first growth had lost its compact covering and had become porous; the dura was very adherent to the bone.

The ocular conditions during life were cleared up quite satisfactorily by the post-mortem findings. The cavernous sinus receives anteriorly the ophthalmic vein through the sphenoidal fissure; on its internal walls is found the internal carotid artery and the sixth nerve; on its outer wall are the third, fourth, and the first division of the fifth cranial nerves.

The pressure exerted by the tumor upon the sinus explains the paralysis of the muscles and the anæsthesia of the cornea. This pressure, together with pressure upon the ophthalmic vein, accounts for the exophthalmos by preventing the return flow of blood through the angular and ophthalmic veins into the cavernous sinus. The pressure exerted in front of the chiasm caused the optic atrophy. I think the edema of the temporo-sphenoidal lobe caused the word deafness. The atrophy of the right eye was caused

by the tumor at the angle of the right optic commissure. The cause of the external squint in the right eye is somewhat obscure, as there was no implication of the third nerve on that side. My opinion is that there was some pressure exerted upon this nerve at the sphenoidal fissure, probably as it passed through it.

1343 L Street.

Analyses, Selections, Etc.

Relationship of Milk to Bone and Joint Tuberculosis.

The question as to how largely tuberculosis in children and adults is due to the entrance into the body of tubercle bacilli derived from the cow, and how largely it is due to the entrance of bacilli which come from human beings, has been one of warm debate for a number of years, and wide differences of opinion have existed between the highest authorities on the subject of tuberculosis. Some have gone so far as to insist that practically all cases of tuberculosis in children are due to tuberculous milk or tuberculous food of some kind. For this reason a research which has appeared in the *Journal of Experimental Medicine* of October 1, 1912, by Fraser, is of very great interest. By careful and accurate bacteriologic methods he differentiated the human from the bovine tubercle bacillus, and thereby was enabled to determine in large degree what cases of bone and joint tuberculosis were due to one cause or the other. He has proved that, in Edinburgh at least, a large proportion of bone and joint tuberculosis in children is due to infection by the bovine bacillus, and that this bacillus enters the body by practically only one route—that is, by the stomach—and in one medium, namely, cow's milk. In the comparatively limited number of cases in which the human bacillus was found to be the cause of the trouble there was also found a definite history of pulmonary tuberculosis affecting some one else who lived in the house, and all the evidence went to prove that the infection had been direct from the patient to the child. This research, as well as a number of others which have preceded it, emphasizes the importance of careful supervision of milk which is ingested by adults and children. Indeed, it would seem evident that if milk from

tuberculous cattle can be excluded from the diet of children, the number of cases of bone and joint tuberculosis in this class of patients can be very greatly diminished; and if care is used as to direct infection from tuberculous adults these distressing maladies of childhood which destroy usefulness or life can be almost entirely set aside.—(*Editorial, Therapeutic Gazette*, December, 1912.)

Reducing the Number of Feeble-Minded.

After four years' investigation among the population of England and Ireland the Royal Commission compiled statistics which make it evident that the feeble-minded mothers of Great Britain have proportionately twice as many children as the normal. Field workers in this country encounter a similar condition. The feeble-minded are multiplying at twice the rate of the general population. This is largely accounted for by the fact that feeble-minded men and women are lacking in self-control. The result of research work by the Department of Public Charities in Philadelphia confirms the opinion that the rate of propagation of the feeble-minded is far greater than that of the normal. The birth-rate is not an accurate index of permanent increase, since the low mental or financial status of the parents lessens the children's chances of survival. The infant death-rate in the illegitimate Kallikak line, for instance, was about six times as great as in the legitimate line.

Still, the fact that such defective lines are able to increase at all and to perpetuate themselves for generations is sufficiently disquieting. It is notorious that the offspring of feeble-minded parents are especially liable to inherit the defective mentality. According to Goddard, about 65 per cent. of all the feeble-minded owe their condition to heredity. It thus becomes apparent that the one great problem in the prevention of feeble-mindedness is the prevention of reproduction by those who are thus afflicted.

Many tentative experiments have been made along the line of sterilization. Indiana, Washington, California, Connecticut, Nevada, Iowa, New Jersey and New York have all passed laws which provide for some form of sterilization of feeble-minded and certain criminal types. Pennsylvania is prevented from having such a law only by the governor's veto of the bill. Kansas and Nebraska have both made experi-

ments with this method of dealing with sexual offenders. For political reasons both of these States had to abandon the practice at least temporarily. The New Jersey law, though far-reaching and carefully planned to avoid abuse while lending itself to the aid of scientific research, has not been in effect long enough to warrant conclusions as to its practical outcome. Indiana has given the sterilization plan the most thorough trial of all. In that State the practice of vasectomy on certain criminal types has been legalized for the last seven years. In the reformatory at Jeffersonville about three hundred men have been operated on.

When the whole subject is viewed from a practical point of view the arguments for sterilization of the mentally defective seem greatly to outweigh the sentimental reasons advanced against it. Many inmates of institutions for the feeble-minded could be kept safely at their homes and at least help to earn their own living were it not for the opportunity to reproduce their own kind which such liberty would give them. Although segregation of this class during the whole of the reproductive period is effective in its results, it carries with it a financial burden which seems unnecessarily large. Considered in all its various aspects, it would appear that the most practical plan for the elimination of the feeble-minded strains should judiciously combine the methods of segregation and sterilization.—(*Journ. A. M. A.*, November 16, 1912.)

Some New Evidence on the Tobacco Question.

The consideration of tobacco and its dangers has heretofore been largely based on the amount of nicotin contained in the smoke. But there are other products of tobacco which must share the responsibility. Among these are carbon monoxid gas, prussic acid, furfural and some others. Although all of these compounds admittedly are poisonous, their danger depends on the quantities in which they are taken. Recently investigations have been made of some of these toxic products, and the results are of considerable interest. The fact that the action of certain kinds of tobacco has been attributed to the prussic acid in their smoke has induced the Würzburg hygienist, Prof. K. B. Lehmann to investigate the charge. He has found that the amount of this compound produced depends somewhat on the rate at which the tobacco is

smoked. The slower the current of air through a cigar the smaller is the amount of prussic acid formed. The entire amount found, however, is too small to account for the effects. So far the burden of the blame for the ill effects of smoking would appear to rest on nicotin. Investigations made by the London *Lancet* indicate that the ordinary cheap cigarette contains the least nicotin in the smoke and the pipe the most, the cigar occupying an intermediate position. Assuming, then, that nicotin is the essentially injurious substance in tobacco, the cigarette would appear to be the least harmful form, provided that the amount of tobacco consumed was no greater in this form than in others.

The general impression, however, is that cigarette smoking is the most pernicious form of indulgence in tobacco. This might be accounted for in part by the facts that the form of the cigarette makes it possible for young persons to indulge in it when they would not smoke cigars or pipes, that in older persons it lends itself to overindulgence and that the smoke may be inhaled with less irritation, and, therefore, that more of the products may be absorbed into the system. Further investigations indicate that the most injurious forms of smoking are not those in which nicotin prevails, but those in which there is a larger proportion of furfural. Furfural is about fifty times as poisonous as ordinary alcohol. There is a probability that the least harmful tobacco will turn out to be that which yields a minimum of furfural in the smoke. Although the amount of nicotin present in the cheaper grades of cigarettes is practically negligible, the amount of furfural appears to be sufficient in itself to account for the bad effects attributed to cigarette smoking. The use of tobacco in its various forms is so general that the subject is of almost universal interest. *The Journal of the American Medical Association* thinks that the smoker is entitled to know the dangers and the safest methods of using tobacco, while educators and all who have anything to do with the young, whether by example or by precept, will appreciate scientific facts with which to back up wise deductions from experience.—(*Idem.*)

The Auscultatory Blood-Pressure Phenomenon.

The first phase is due to the sudden expansion of the collapsed portion of the artery below the

cuff (12 cm.) and to the rapidity of the blood flow. This causes the first sharp clicking sound which measures the systolic pressure.

The second, or murmur and sound phase, is due to the whirls in the blood stream as the pressure is further released, and the part of the artery below the cuff begins to fill with blood.

The third tone phase is due to the greater expansion of the artery and to the lowered velocity in the artery. A loud tone may be produced by a stiff artery and a slow stream, or by an elastic artery and a rapid stream. This tone is clear cut and, in general, is louder than the first phase.

The fourth phase is a transition from the third and becomes duller in sound as the artery approaches the normal size. Fisher believes this transformation coincides with the desirable pressure.

The fifth phase, no sound phase, occurs when the pressure in the cuff exerts no compression on the artery and the vessel is full throughout its length.

It is generally conceded that the sounds heard are produced in the artery itself and not at the heart.

The tones vary greatly in different hearts. A very strong tone phase, or prolongation of this phase, usually means that the heart, which produces the tone, is a strongly acting one, although allowances must be made for a sclerosed artery, in which there is a tendency to the production of a sharp third phase.

Weakness at the third phase, as a rule, indicates weakness of the heart and this dulling at the third phase may be so excessive that no sound is produced. Goodman and Howell have carried this method further by measuring the individual phases and calculating the percentage of each phase to the pulse pressure. Thus, if in a normal individual the S. P. is 130 m. m., the D. P. 85 m. m., and the P. P. 45 m. m., the first phase lasts from 130 to 116, or 14 m. m.; the second from 116 to 96, or 20 m. m.; the third from 96 to 85, or 11 m. m.; the fourth from 85 to 70, or 15 m. m. The first phase would then be 31.1 per cent. of the total pulse pressure, the second phase 44.4 per cent., the third phase 11.1 per cent., and the fourth phase 13.3 per cent.

They consider that the second and third phases represent cardiac strength (C. S.) and the first and fourth represent cardiac weakness (C. W.).

They believe that C. S. should normally be greater than C. W. In the example above C. S. : C. W. = 55.5 : 44.4. In weak hearts, especially in uncompensated hearts, the conditions are reversed and C. W. > C. S. This is actually the case. As a heart improves C. S. again becomes greater than C. W. They think that the phases should be studied in respect to the sounds and also to the encroachment of one sound upon another. (Goodman and Howell. See Warfield's Arteriosclerosis, pages 82-85.)—*N. O. Med. and Surg. Journ.*, Jan., 1913.)

Book Notices.

A Manual of Chemistry. A Guide to Lectures and Laboratory Work for Beginners in Chemistry. A Text-book specially adapted for Students of Medicine, Pharmacy and Dentistry. By W. Simon, Ph. D., M. D., Professor of Chemistry, College of Physicians and Surgeons, Baltimore, and Baltimore College of Dental Surgery; and Daniel Base, Ph. D., Professor of Chemistry, University of Maryland. New (10th) edition, enlarged and revised. Octavo, 774 pages. Cloth, \$3 net. Lea & Febiger, Philadelphia and New York, 1912.

Simon's *Manual of Chemistry* has stood the test of years and is now regarded as a standard work. The book is divided into a number of sections, the first dealing with chemical physics—fundamental properties of matter, heat, light, and electricity. Then follow several sections on chemistry proper, while the seventh and last part considers physiological chemistry, the most modern methods for chemical examination in chemical diagnosis being introduced.

As we go through this tenth edition we are not surprised at its great popularity, for with its authenticity is combined a simplicity of statements that lead from the foundation, by easy stages, until the student finds himself aloft with the wonders of higher chemistry. The authors—experienced teachers—have revised, re-written and made additions whenever indicated, so that the volume represents the latest view on this branch of science. There are 82 engravings and 9 colored plates, illustrating 64 of the most important chemical tests.

Editorial.

Every Practicing Physician in Virginia Must Register Before March 13, 1913, to Be a Legal Practitioner.

The Virginia Legislature at its last session passed a new medical law, entitled "*An Act to regulate the practice of Medicine and Surgery in the State of Virginia*," etc., approved March 13, 1912, Section 6 of which reads, in part, as follows:

"6. *Registration of certificates; verification certificates; duplicate certificates; reciprocity.*—Within one year after the passage of this act all licensed practitioners of medicine in this State shall, as above provided, register their certificates to practice medicine in the office of the clerk of the circuit or corporation court of the county or corporation in which they reside."

Further information, if desired, may be obtained from Dr. Herbert Old, Secretary-Treasurer of the Medical Examining Board of Virginia, Norfolk, Va.

In the issue of this journal for April 12, 1912, we called editorial attention to this new medical law in Virginia, and gave its sum and substance in detail. Since then the subject has been further discussed in our columns editorially, through correspondence from Dr. R. S. Martin, now President, and by the publication of a paper read before the October, 1912, meeting of the Medical Society of Virginia by Dr. Herbert Old, Secretary-Treasurer of the Medical Examining Board of Virginia. In spite of all this, however, the latter recently assured us that physicians in the State—with only two months left in which to comply with the law, which is mandatory—are slow to register.

What will be the result of failure to register on or before March 12, 1913? Answered in the words of the Secretary of the Examining Board, it will be this: "Any physician not so registered is presumed to have no such certificate, and is therefore an illegal practitioner and is liable to be penalized. Further, the burden of proof is put upon him to show why he has not a certificate; and an affidavit from the clerk that the defendant has or has not registered a certificate is all sufficient for an acquittal or conviction." The penalties provide a fine of from fifty to five hundred dollars, and,

in addition, in case of flagrant violation, imprisonment—not to exceed six months—may be imposed.

The fact that a physician has a certificate from the Medical Examining Board, or that he has been exempted because of license to practice before the passage of former medical practice acts, and has heretofore complied with the law, paying his special license tax to practice, etc., does not in any sense constitute *registering* as is contemplated by the new law. Registration under such statute has to be done with the court, and the possession of a certificate from the Medical Examining Board of Virginia, or, if lost, a duplicate certificate, or where exempted for reason, a verification certificate, is the only pre-requisite needed to qualify a practitioner to register. But register he must, whether he be eminent surgeon, leading physician, specialist, or otherwise.

The law was not enacted to create hardship upon anyone properly entitled to practice; its passage had for its chief object the elimination of pretenders and the like. The State has given the Board large power, which we believe is necessary, and, properly wielded, this can be made to redound in great good to the people as also to a greater prestige of the profession of medicine in Virginia. The new order of things will entail much extra work upon the Board, and especially upon its Secretary, who is desirous that each physician should *register promptly*. We cannot too strongly urge that this be done without delay, for putting off attention until the eleventh hour will find many to go beyond the limit, with resultant worry to themselves.

Richmond Medical Schools to Be Consolidated.

The long agitated question of the consolidation of the Medical College of Virginia and the University College of Medicine, both located in this city, seems at last about to be definitely settled. Committees representing the two schools have had several meetings, and, on good authority, satisfactory arrangements seem about to be perfected for their amalgamation, though each will retain its individuality until the close of the present session.

The combined college will be known as the Medical College of Virginia, owing to the State ownership of the latter institution. Though there are many surmises as to who will be presi-

dent, it seems that this is a matter yet to be finally decided.

Both colleges have taken a high stand in the Association of American Medical Colleges, and this consolidation, which will offer medical students in Richmond exceptionally fine clinical and laboratory advantages, will of necessity serve to make the united schools stronger and more influential, and thus make Richmond one of the leading medical centers of the country.

The International Congress of Medicine.

The United States, will be represented by a number of prominent physicians at this Congress which meets in London, England, August 6-12, 1913. Dr. William S. Thayer, of Baltimore, is president of the Executive Committee from this country. Applications for membership may be obtained from the secretary, Dr. Alfred R. Allen, 2013 Spruce Street, Philadelphia.

A Physicians' Travel Study Tour for American physicians attending has been arranged to leave New York July 3rd. This tour will include a number of the most important European cities and health resorts, ending with the week of the Congress in London. Some prominent physicians have seen and endorsed the plans of a trip which has been planned by Dr. Richard Kovacs, of 236 East Sixty-ninth Street, New York, who will give detailed information of this trip to any physicians who may be interested. Such a plan of travelling should be of great advantage to physicians who wish to visit the various European countries but who are unfamiliar with the languages.

We understand that tours are also being arranged by Drs. J. M. Anders, of Philadelphia, and C. W. Fassett, of St. Joseph, Mo.

Hookworm Dispensary Work in Caroline County, Virginia.

Reports made to the State Board of Health, through inspectors in charge of the hookworm dispensaries in Caroline County, show that a total of more than four thousand eight hundred persons have been examined, and of these, only about twenty-five per cent. showed hookworm infection. This is the largest attendance yet made on any of the dispensaries in this State, with the smallest percentage of infection, as in some counties as many as two-thirds of those examined have shown the infection.

Several other counties have made appropriations for hookworm dispensaries and are anxious to have State authorities take up the work, though it has not yet been decided where the next dispensary will be opened.

The Buncombe County (N. C.) Medical Society,

At its annual meeting in Asheville, in December, elected Dr. A. W. Calloway, president, Dr. Paul H. Ringer, vice-president, and Dr. G. S. Tennent, secretary-treasurer. Drs. E. R. Morris, L. B. McBrayer and Carl V. Reynolds were elected delegates to the State Medical Society, and Dr. H. H. Briggs, a member of the board of censors. The meeting was followed by the annual banquet, at which a number of prominent members of the North Carolina profession were present, including Drs. J. Howell Way, Waynesville, J. P. Munroe, Charlotte, and W. S. Rankin, Raleigh.

Dr. E. H. Terrell,

Richmond, Va., at the beginning of the present year, gave up general practice, and will, in the future limit his practice to diseases of the rectum and colon. Dr. Terrell is one of the few men in the South to devote himself to this specialty, and his excellent work in this line has been recognized by his recent election to the American Proctologic Society.

Dr. H. D. Gilmer,

Of Elkton, Va., has discontinued the general practice of medicine, having sold out to Dr. L. H. Lewis. He is now taking a special course in eye, ear, nose and throat work in Baltimore, and will later go to New York for further study.

Dr. Tom A. Williams,

Washington, D. C., who is well known in this State as a member of the Medical Society of Virginia, was recently elected president of the Washington Society of Nervous and Mental Diseases.

Dr. George P. Hamner,

Who has proved his efficiency as coroner of Lynchburg, Va., has been reappointed to that position for the term ending January 1, 1916.

The Southern Conference for the Eradication of Hookworm.

Which met at Little Rock, Ark., the middle of December, elected Dr. Olin West, Nashville, Tenn., president, and Dr. S. D. Porter, New Orleans, La., secretary-treasurer.

Investigation of the Waters of the Potomac River for Sanitary Purposes.

Realizing that any pollution of the waters of the Potomac would materially effect sanitary conditions in both Virginia and Maryland, the Governors of these States requested Surgeon-General Blue to have the river investigated, with a view to making possible the control of sewage disposal in cities utilizing this stream. The work was commenced early in the month, with Dr. John F. Anderson of the Hygienic Laboratory in charge, and it is hoped that both States may profit by the investigation.

The Petersburg, Va. Health Department

Reports a total of 570 deaths and 660 births for 1912. While the colored population is less than the white by at least 2,000, yet the death rate was much higher, and the birth rate lower with the colored than with the white people.

Dr. Burton Haseltine,

Professor of diseases of the nose and throat in Hahnemann Medical College, Chicago, was tendered a banquet by the Homeopathic Medical Club, on the occasion of his recent visit to this city.

Cerebro-Spinal Meningitis in Georgia Town.

An epidemic of cerebro-spinal meningitis has recently been reported from Midville, Ga., with a mortality of fourteen. State health officers have been put in charge, and at this time, conditions seem much improved.

The Virginia Osteopathic Society,

Which met in Richmond, December 14, under the presidency of Dr. J. Meek Wolfe, of Bristol, decided to hold its next semi-annual meeting in Bristol, in June, 1913, and elected Drs. S. H. Bright, Norfolk, and W. D. Bowen, Richmond, president and secretary-treasurer, respectively.

Discussion of the strict enforcement of the antichiropractor act passed by the last Legislature was one of the principal topics before the Society.

Fight Against Hookworm in North Carolina.

Sixty counties in North Carolina have made provision for campaigns against hookworm infection. The work is being done by means of the hookworm dispensary treatment, and is directed by Dr. John Ferrall, of the North Carolina State Board of Health.

An Analytical Laboratory,

For the analysis of water, milk, oils, foods, drugs, mill and distillery products, beverages, etc., has been established at the University College of Medicine, Richmond, and is under the charge of A. Bolenbaugh, B. Sc. and Wortley F. Rudd, M. A., Ph. D.

The U. S. Civil Service Commission

Announces upon competitive examinations on January 22nd, for medical interne for the Government Hospital for the Insane, Washington, and on February 5th, for male physician to fill vacancy in the Indian service. The first examination is open to both men and women, though there are at present no vacancies for women. Full information may be obtained from the above Commission at Washington, D. C.

The Farbwerke-Hoechst Company,

Of New York City, the first of this month celebrated its fiftieth anniversary. It is interesting to note that from a small beginning the concern has grown until at this time it has twelve thousand people in its employ.

IN THE MONTH OF JAN.

A MODERN PILGRIM'S PROGRESS.

(John Kendrick Bangs, in "Judge.")

FIRST WEEK.

Hear the sinners swearing off!
Hear the joyous crew
Vowing how they're going to doff
Naughty things they do!
Sweet reform is in the air.
'Tis a splendid plan,
Cutting vices everywhere
In the month of Jan!

SECOND WEEK.

Hear the sinners weakening!
Hear their sorry plaint!
How the crowd is murmuring,
"Hard to be a saint!"
'Tis not easy to be good—
Mighty few who can
In this surging multitude
In the month of Jan!

THIRD WEEK.

Hear the slipping sinners slide!
Hear 'em climbing back!
Best will weaken when they're tried;
Vows are getting slack.

Taking on their former ways,
Now beneath the ban—
These are very trying days
In the month of Jan!

FOURTH WEEK.

Business is resumed again
All along the line!
All these once converted men
Now are going fine;
There has been an awful thaw
In the saintly clan—
Seems to be a sort of law
In the month of Jan!

Obituary Record.

Dr. Charles Camp Daniel,

A native of Prince George County, Va., died of typhoid fever, at his home in Boissevain, Va., December 27th, aged twenty-nine years. He received his academic education at Windsor, Va., after which he studied medicine at the Medical College of Virginia, from which he graduated in 1906. He was a member of the Medical Society of Virginia and an assistant surgeon of the Norfolk and Western Railway. For a while before locating in Boissevain, Dr. Daniel practiced his profession in Wiggins, South Carolina. Besides his wife and two children, he leaves a large family connection. The interment was made at his old home in Prince George County.

Mr. Valdemar Ulrich,

Well known by the profession of Richmond, as a masseur of exceptional ability, shot and instantly killed himself at his home in this city, early in the morning of December 26th. Despondency because of ill health is believed to have been the cause of his suicide. Mr. Ulrich, who was fifty-four years of age, was a Swede by birth, and a fluent linguist. He had studied his profession in a Swedish college, and came to this country in 1899, having located in this city several years ago. His wife survives him. He had several times contributed to the pages of this journal.

THE Virginia Medical Semi-Monthly.

(FORMERLY VIRGINIA MEDICAL MONTHLY.)

Vol. 17, No. 20.
Whole No. 404.

RICHMOND, VA., JANUARY 24, 1913.

10 Cents a Copy
\$2.00 a Year

Original Communications.

THE KIDNEY IN ARTERIOSCLEROSIS.*

By B. M. RANDOLPH, M. D., Washington, D. C.
Professor of Materia Medica and Therapeutics in the
Medical Department of George Washington
University.

The association of chronic interstitial nephritis with arteriosclerosis has been fully recognized for years. It is rare that either condition occurs in any marked degree without the presence of the other. The changes in the urinary findings in pure arteriosclerotic kidney are not pronounced, and consist in a slight increase of the water, especially at night, a somewhat lowered specific gravity, a moderate diminution of solids, and the occasional presence of small amounts of albumin. The sediment is scanty, but will, on careful examination, be found to contain a few hyaline casts. Oxalates and indican may be present in excess, but these are dependent on associated defects of digestion and have no immediate bearing on the state of the kidney. The above condition is not incompatible with comfort and comparative health, and if the hygiene of life is adjusted to the altered conditions, the patient may live out his expectancy with a fair degree of efficiency. If, however, such adjustment is not made, the impairment of elimination resulting from the vascular disease, together with the continued irritation of the toxic material which is the primary cause of the arteriosclerosis, causes a progressive connective tissue proliferation and an atrophic degeneration of the epithelial structures of the kidney, that constitute a true interstitial nephritis. Here the urinary findings

are—polyuria (2000-4000 c. c.), low specific gravity (1.005-1.012), loss of power of eliminating solids, and the presence of albumin, hyaline and granular casts, and sometimes degenerated epithelium.

Morbid Anatomy.—The kidney is small because of the contraction of the organ by the newly formed connective tissue as the latter matures. The surface is roughened or irregular, and the capsule densely adherent. On section the organ is leathery instead of being crisp. The cortex is narrowed, dark red, and granular. The microscope shows disseminated areas of newly-formed connective tissue in various stages of development. The blood vessels are thickened, and the tubular epithelium shows the varying stages of atrophy up to complete disappearance. The glomerular tufts are compressed and atrophic, and may show complete hyaline degeneration.

It is not necessary to repeat the well-known clinical picture of this condition in its gradations from the early symptoms of headache and indigestion to the development of albuminuric retinitis and uremia. But I do think it appropriate to give some consideration to etiological factors.

A vast amount of energy and dialectic skill has, in my opinion, been wasted in the discussion of which is the antecedent condition; whether the arteriosclerosis precedes the kidney changes, or whether the kidney changes precede the arteriosclerosis. If it could be definitely shown that one causes the other, the solution of the question might be profitable. But, if they are both the results of a common cause, the question of antecedence becomes a minor one. Typhoid infection produces ulceration of Peyer's patches in the ileum, and also an enlarged spleen; but we do not therefore find it

*Read in a Symposium on Arterio Sclerosis before the George Washington Medical Society, October 19, 1912.

necessary to determine whether the splenic enlargement precedes the ulceration, or the ulceration the enlargement of the spleen. I call your attention to the following quotations:

"The study of the pathological anatomy of the kidney has thrown but little light on the essential nature of the acute and chronic diseases in which the lesions of the kidneys form a part of the pathologic processes. It early led to a classification of the lesions, and to a nomenclature which was intended to be expressive of their nature and histogenesis, but which is not.

..... The anatomic study has led to a better appreciation of the extraordinary complexity of chronic disease, and to a recognition of the interrelation of affected organs..... There are certain conclusions forced on one by the careful routine examination of the kidneys in a large number of autopsies. Probably the most important is that the lesions of the kidneys are only a part of the whole. Almost invariably there are lesions in other organs, sometimes of the same general character as the lesions in the kidney, sometimes of a different character. *We cannot consider kidney disease as an entity.*" (Italics mine.) *Councilman, (1906).*

"In nephritis, the kidney is the exponent of a morbid state of the whole organism." *Maragliano, (1909)*

These quotations indicate the concept that I think we ought to have of this group of pathologic changes that affect the blood vessels and the various organs they supply.

A cell can respond to any agent only by expressing a modification of the function with which nature has endowed it. This modification must consist in either the increase or decrease of that function, that is in stimulation or depression. The cell can make no other response than cessation of function; that is cell death. Every manifestation of drug action and toxic action is susceptible of being subjected to this formula. We find that the differences in actions of drugs are due to the fact that they select different tissues, but that the reaction itself is always stimulation or depression, expressing itself according to the function of the tissue affected. For example, the alkaloid strychnine has a selective affinity for the reflex areas in the spinal cord, and to a less degree, for the medulla; caffeine prefers the areas of

cerebration in the brain, and the epithelium of the kidney; atropine chooses to stimulate the brain, and at the same time exerts the contrary effect of depression on the nerve endings of the mucous and sweat glands, and on the cardiac distribution of the vagus.

Chemistry teaches us that the action of putrefactive bacteria on organic material results in the formation of ptomaines, which are chemically true alkaloids. Vaughn and Novy have collected fifty-nine of these alkaloids, of which thirty are toxic.

We know that saprophytic bacteria are found in the alimentary tract, and cause putrefactive changes in the food with which they come into contact. That some of the resulting products are toxic is admitted. That there are other unknown products-produced by the abnormal action of the bacterial flora of the intestine is almost certain. That some of these products are also toxic seems more than probable, from the clinical fact that certain symptoms of intoxication are most effectually relieved by measures directed toward the removal of the products of putrefaction from the intestine, and the prevention of their further formation. Reasoning from the analogy of the known selective action of drug alkaloids, we may well expect that the products of intestinal putrefaction, when absorbed into the circulation, would exhibit a great variety in the character and distribution of their toxic action. The intima of the blood vessels, owing to exposure to the earliest, most continuous and most concentrated contact with the toxic material, would be expected to suffer first; then the organs of continuous function, as the kidney, liver, and heart muscle; later the nervous system, and organs of highly specialized function. We should be prepared to find that certain tissues have a predisposition acquired from previous disease, alcoholism, exhaustion from over-work, or low resistance from under-development.

The foregoing concept may be said to be largely imaginative. It is based on a certain amount of experimental evidence, which is supplemented by analogy and impressions received from clinical experience. It is therefore open to criticism and correction. The first criticism that suggests itself to me is that there may well be sources of noxious material other than bacterial action; other localities for

its genesis than the alimentary tract. My own observation would point to defective oxygenation in the voluntary muscles through lack of exercise as a source of toxic material only less important than the intestine. My purpose is not, however, to prove the questions at issue, but rather to call attention to a false pathological concept, and to try to indicate the lines along which we must work to arrive at a true one. I have maintained that the only nomenclature, the only pathology that can be regarded as permanent must be based on etiology. In trying to solve the question on the basis of dead-house anatomy, we are like the geologists trying to write the history of prehistoric ages from the strata of the earth. Much is learned in this way, but the geologist has the advantage of us in that the facts in his case are not cropping up continually to spoil his inferences. We have started at the mouth of the stream, and explored its tributaries as best we can, and it now rests upon us to begin at the watersheds and work downward.

The point that I wish to make is that the functional disturbances and subsequent degenerative changes that we classify under the head of arteriosclerosis are the results of a chronic diffuse intoxication, extending over a long period of time; that the atheroma, nephritis, myocardial degeneration, intestinal paresis, retinal changes, dementia, apoplexy, etc., are ultimate results of this intoxication; that the distribution of the dominant changes varies according to the nature of the toxic material and to individual susceptibility, congenital, or acquired; and that, while we must continue to treat local conditions as they arise, our therapy will be improved, especially from a prophylactic standpoint, by an early appreciation of the etiological factors which bring about such results.

REFERENCES.

- Councilman.—*Jour. A. M. A.*, January 13, 1906. pp. 84-85.
 Maragliano.—Sull's etiologia delle nefriti, *Gazz. Hosp. Milan.*, October 7, 1909.
 Vaughn and Novy.—Ptomaines and Leucomaines. *Twentieth and P Streets, Northwest.*

The Virginia State Board of Pharmacy

Commenced its quarterly examination for applicants to practice pharmacy in this State, on January 21. One woman and three negroes were among the 52 applicants before the Board.

APPENDIX ABSCESES DISCHARGING PUS INTO THE URINARY TRACT.*

By C. L. ANDREWS, M. D., Roanoke, Va.
 Jefferson Surgical Hospital.

Probably no other disease to which the human body falls heir has produced a greater array of literature during the past fifteen years than that given to appendicitis. Therefore, it becomes immediately apparent, in order to be excused for attempting to invite your attention to a subject whose every phase seems completely exhausted, one must necessarily turn aside from the commoner findings of this disease and give some unusual complications, which, according to the literature, have occurred but a very few times.

With this feeling of apology in mind, I wish to report four cases of appendicitis, of unusual interest, from the clinic of Dr. Trout, of Roanoke, through whose courtesy I am permitted to use the operative notes.

It is not the purpose of this paper to mention the coincident relationship often observed existing between appendicitis and pyelitis, pyelonephritis and cystitis; or cystitis and pyelitis due to direct extension of the disease; or spontaneous rupture of appendix abscesses into the urinary tract with permanent relief, but to mention only those cases in which a sinus between the appendix and the urinary tract has been found at the time of operation, thus permitting an almost constant discharge of pus with a resulting pyuria existing over a considerable period of time.

At a glance such unusual complications seem so extremely rare we are prone to think of them as surgical curiosities, and regard them only as findings which increase the stumbling stones in the pathway of the diagnostician. However, appendicitis has become more and more common till during the past few years abdominal pain is almost regarded as appendicitis till proven not to be.

It is for this reason I wish to report these cases, thinking perhaps other similar cases may be met with in the future. The finding of pus in the urine need no longer be regarded as necessarily indicative of an inflammation somewhere in the urinary tract, for an appendicular sinus offers a remote possibility of being the source

*Read before the forty-third annual meeting of the Medical Society of Virginia, at Norfolk, October 22-25, 1912.

of pus as well. Not unlike appendicular abscesses which pointed in the right iliac fossa and were incised and evacuated of their contents as far back as the Christian era, what seems to have been pus discharging through the urinary tract has attracted attention for a corresponding length of time. Areteus, in his "Causes and Symptoms of Disease," speaks of the bladder as the passage-way for matter coming from abscesses of the liver, spleen and kidney in males, and through the vagina in females. This, he says, could easily have been a pyonephrosis or an abscess with its origin in the right iliac fossa. However, according to the findings herein recorded, appendix abscesses discharging pus into the urinary tract deserve some ancient mention as well.

Since surgery of the vermiform appendix has been largely developed during the past twenty-five years, we accordingly expect fewer chances for the rarer complications of appendicitis to have been found.

The first case of appendicitis reported in literature with sinus formation between the appendix and urinary tract, through which pus was doubtless discharged, was reported in the *Transactions of the American Surgical Association* in 1898 by Dr. W. W. Keen. In this report he describes the appendix as "firmly soldered to the bladder like a third ureter, producing a urinary fecal fistula which discharged fecal matter constantly into the bladder." This case is of particular interest, first, because of the great difficulty afforded Dr. Keen in making the diagnosis; and, secondly, because of the great similarity to a case of our own.

At the age of seven, patient upon examination showed a pin well down in the urethra, which was removed, but no history of its having been swallowed could be obtained. A few months later, the patient is said to have had an abscess of the prostate.

Looking back upon the case at this stage of the development, and considering the operative findings, one can easily conceive of there being a time when pus was discharged through this sinus before it became a fecal fistula.

Dr. George R. Fowler⁴ reported in the same issue of *Transactions of the American Association* another case of appendicitis with a fecal fistula between the appendix and bladder, but

he further states that previous to the passage of fecal matter there was a passage of pus.

Apphun⁵ reported in the "Thèse de Nancy," in 1903, a search of literature[†] regarding appendix abscesses involving the urinary tract, and out of twenty-five cases which perforated into the bladder, in only four was there a direct sinus connection between the appendix and bladder through which pus was discharged for any length of time. The remaining twenty-one were spontaneous.

The histories in our hospital during the past four years show four of these interesting cases, only one of which was diagnosed clinically, but all of which were proven by operative findings.

Case I.—Male, aged 46; occupation, foundry man. Was admitted to the hospital June 30, 1908, complaining of inability to urinate. Personal history negative until 1889, when he began to have what was called "malaria," associated with slight abdominal pain. Ten days before admission he was taken with severe pain at the end of the penis, associated with a chill. Morphine was given to allay pain. Next day pain returned in right lumbar region, and radiated toward the genitalia.

Two days before admission patient was first seen by a member of our staff, when his condition was diagnosed as acute retention; a catheter was passed at that time, and about 300 cc. of urine and pus was removed. Two days later, upon admission, he was again catheterized and about 100 cc. of similar urine removed. Efforts were made to find the tubercle bacillus in his urine, but only the colon bacillus was isolated. Examination showed a mass extending half-way to the umbilicus, which, on palpation, was quite tender. Temperature was 102° F., pulse 90, and white blood corpuscles 10,000.

Cystoscopic examination made at that time was very unsatisfactory, owing to the fact that patient could not retain sufficient water in his bladder to prevent being burned by cystoscope. Three days later cystoscopic examination, made with a Bradford-Lewis cystoscope under anesthesia, apparently showed diverticulæ through-

[†]In *Transactions of the Southern Surgical Society*, December, 1909, Vol. XXII, Dr. H. A. Royster, of Raleigh, N. C., in discussion of chronic appendicitis, reported another case of appendicitis which opened into the urinary tract. This case gave all the symptoms of stone in kidney or ureter, but at operation was found to be a Chronic appendix which was lying directly on the ureter and had ruptured into it.

out the bladder, from one of which pus could be seen escaping.

Operation was then performed. A right rectus incision was made and, upon opening the peritoneum, a large abscess was encountered, which was opened and evacuated of about a pint of pus. The appendix was found on the outer wall of the abscess, and a silver catheter, introduced through the penis and guided by means of the finger, passed through the communication between abscess and bladder.

Abscess cavity was drained and urine came out of wound for three weeks, gradually ceasing.

Since operation, patient has had no further chills or urinary trouble. Cystoscopic examination made six months later showed no further trace of the diverticulum which previously gave exit to the pus, and bladder wall had apparently returned to normal.

Case II.—Male, aged 39; occupation, lawyer. Was admitted to hospital January 16, 1909, complaining of pain in his right side. Personal history negative till December, 1908, at which time his condition was diagnosed as a mild attack of appendicitis. This attack subsided in two days.

Upon admission one month later, his condition was diagnosed as a pus kidney on right side, based upon the following facts: A large palpable mass in region of kidney; a septic temperature, and catheterization of ureter showed the presence of pus in great quantities. Numerous examinations negative for tubercle bacilli.

Patient would not submit to an operation until January 28, twelve days later, when a lumbar incision was made with a view of removing the kidney. Just below the fatty capsule of kidney, a large abscess was found, which was opened and drained. The appendix was then found in front of kidney, with the tip adherent to the pelvis of the kidney. While there was no definite sinus seen at this time between the appendix and pelvis of kidney, urine came out of wound for about two weeks afterwards, and pus, which had previously been present, soon disappeared from the urine.

Case III.—Male, aged 47; occupation, physician. Was admitted to hospital July 26, 1912, complaining of pain in right side of abdomen, loss of taste for food, and severe headaches.

Personal History.—Since early boyhood patient had suffered with irregular attacks of abdominal pain which would soon subside, and were accordingly treated with little concern.

In 1890 patient was taken with what he thinks now was his first attack of appendicitis. His temperature at that time went extremely high, 104° F., but the attack lasted for only four or five days.

In 1895, five years later, he had another sharp attack of abdominal pain which was diagnosed "remittent fever." Temperature again went quite high, but, as formerly, soon subsided.

In 1906, eleven years later, he had a third attack of abdominal pain, which was diagnosed first, as "colic", but subsequent urinary analysis showed the presence of a great quantity of pus, which led, through process of elimination, to a further diagnosis of abscess of the prostate. Since that time patient has had pus in his urine at irregular intervals, this always being associated with a severe attack of headache. Coincident with an attack of headache was the presence of abundant pus in urine, which cleared up as soon as headache disappeared.

Patient was seen one year before admission, and catheterization of both ureters showed no pus; none was seen in prostate, and none with cystoscope in bladder; still there was pus present in the urine. Smears and cultures from the urine at this time showed the presence of colon bacilli in great numbers.

On admission, patient's condition was diagnosed as chronic appendicitis, and operation advised.

Operation was performed next day, July 27, and the following noted: Upon opening the peritoneum the omentum was found rolled up into a mass, while the bladder was pulled well above its normal position and the two firmly adherent at the fundus. This mass was freed of its adhesions and the appendix found in its center. The appendix was removed and the bladder folded in on itself in the usual way. There was no sinus seen at time of operation large enough to permit the passage of a probe, but urine came out of the wound for several days afterwards in sufficient quantity to soil dressings. After appendectomy, pyuria and bacilluria cleared up; his former taste for food has returned and the severe headaches have

gradually become fewer and less severe, and the patient has gained about fifty pounds in weight.

Case IV.—Male, aged 47; occupation, farmer. Was admitted to hospital February 20, 1912, complaining of repeated attacks of abdominal pain and thick urine.

Personal history negative until past three or four years, during which time he had had repeated attacks of abdominal pain, which were diagnosed by his family physician as sub-acute appendicitis. Patient was advised at this time to have an operation performed, but treated the matter with no further consideration.

Three weeks before admission he was taken with another severe attack of abdominal pain, when he was again advised by his family physician to come into the hospital. Five days before admission he was again taken with sudden pain in the region of his bladder, with a desire to void when a large amount of purulent urine was passed. This frightened patient into hospital.

The same day the patient himself felt a mass in his right side, which was verified on admission and diagnosed as an abscess of appendix.

The following was found at operation: A large abscess extending from region of appendix to bladder. The appendix had sloughed, but its tip still remained adherent to bladder. Abscess was drained, bladder folded in on itself, and patient made an uneventful recovery.

CONCLUSION.

First.—In all of these cases, except three, where the history was possible, evidence of attacks of abdominal pain during childhood was obtained. Therefore, the adhesions must have begun in most cases while the appendix was yet a pelvic organ. This was undoubtedly true in Dr. Keen's case, as pointed out by him; the appendix was long and had a normal meso-appendix.

Second.—All of these appendices ran a chronic course and caused repeated attacks of abdominal pain, which could have been relieved by operation long before they became appendicular-urinary sinuses of more serious consequence.

Third.—These cases emphasize the great importance of careful urinary analysis, especially microscopical analysis of all cases suffering with attacks of abdominal pain, keeping in mind the

occasional occurrence of appendix abscesses which may discharge pus into the urinary tract.

BIBLIOGRAPHY.

1. Kelly & Hurdon, "The Vermiform Appendix and its Diseases," page 318.
2. Kelly & Hurdon, *Ibid.*, page 31.
3. Keen, *Trans., Amer. Surg. Asso.* 1898, Vol. 16 page 243.
4. Fowler, *Ibid.*, page 248.
5. Apphun, *Thèse de Nancy*, 1903.

CÆSAREAN SECTION.*

By MARTIN D. DELANEY, A. M., M. D., Alexandria, Va.

After having performed four Cæsarean sections, two abdominal and two vaginal, with no mortality rate, all mothers and children living, I decided to look up some of the literature on the subject and present it for your consideration. My abdominal cases were both on the same woman.

After the first section, I ligated the tubes to prevent conception; after the second, I examined the tubes and found them closed, showing there was another opening somewhere in the uterine wall, also showing how pregnancy can take place after ligation of the tubes. I am not going to bore you with the technique of this operation, nor am I going to discuss to any extent the indications for its performance. All modern text-books on obstetrics are so thoroughly up-to-date and brilliantly illustrated that I do not deem it necessary.

The early history of the Cæsarean operation is veiled in the mists of the past. Assyria and Egypt which have given so many treatises to civil and medical knowledge are strangely silent concerning this operation. There can be no doubt that it was known to those students of Nineveh and Babylon who devoted their lives to the studies of anatomy and physiology: for they were indeed men who withdrew from the common pursuits of mankind, leaving all to sacrifice their lives and welfare upon the altar of science. Their intellectual attainments and achievements far surpass and excel the idea that present cursory readers of history have of them.

Chosen from the brightest of the apprentices of the temples, they were not content with a superfluous knowledge gleaned from this or that source, but delved into the depths of this or

*Read before the forty-third annual meeting of the Medical Society of Virginia, at Norfolk, October 22-25, 1912.

that science and sought to bring to light the answer to that eternal question, "Why." Let us hope, therefore, as some explorer draws away the sands of time from some city buried beneath the shifting elements of many years, forgotten or unknown through the lapse of centuries, there may be found traced upon the adamantine bricks in hieroglyphic characters, a description of this operation. Sacred scriptures, too, give no hint of this operation. The Talmud, however, according to Mansfield (1824) gave a description of it, but this has been disproved by his contemporaries. It is with regret that we must turn from those lands where the dawn of the human race is clearly depicted on the horizon of time to that land which sent forth its stalwart sons to conquer, subjugate and rule the nations of the world.

Roman legend tells us that Numa Pompilius, wiser than myriads, who graced the sphere in after centuries, ordered every pregnant woman who died to be opened (Chambers Enc., vol. 2, p. 621). Pliny also informs us that the celebrated Scipio Africanus and Manilius were saved by Numa Pompilius's wise law, and Valerius Maximus speaks of the quasi-posthumous birth of the philosopher Gorgia (Theory, Practice of Obstetrics, Cæzean and Tanier, v. 2, p. 1030). Pliny (in book 8, chapter 9), declares that Cæsar was born in this manner. If this is so, then both mother and child survived, as Aurelia, his mother, was living when Cæsar first invaded Gaul.

According to many authorities the Cæsearean operation derives its name from the fact that Cæsar was born by its means. This conclusion, in our humble estimation, seems far fetched. Since it is an undeniable fact that in the course of time, men who carved a pathway of unusual brilliancy through life are surrounded and adorned by legendary lore and tradition with remarkable characteristics of birth, station and death, so likewise with regard to Cæsar. In all sound probability the word came originally from *caedo*, to cut, but in the vista of years men ascribed to that remarkable genius of Rome an unaccustomed manner of birth. As centuries melted in æons, on account of some similarity between *caedo* and Cæsar, the Cæsearean operation was applied to Cæsar, and its derivation from his name.

Again, we are told that Sixtus Julius, an ancestor of Julius Cæsar is said to have come into

the world by this operation and to have received accordingly the name of Cæsar (Latin: *caedo*, to cut). This name was afterwards retained as a family designation by his descendants and was subsequently given to the operation itself. (Am. Annual Enc., vol. 3, p. 549). This fact, if true, overthrows the opinion of those who held so strenuously to the idea that the name, Cæsearean, was derived from Cæsar on account of his birth. It is also a corroboration of the opinion that Cæsearean was originally derived from the word *caedo*, to cut. Be it as it may, we know that this operation trends back and is veiled in the mists of antiquity.

Mansfield, of Brunswick, in a work entitled, Ueber das Alter des Bauch und Gebärmutter-schnitts an Lebenden Braunschweig, 1824, declares that in an earlier work than Pliny, called Mischnajoth, written about 140 B. C., there is found this passage (Reid's Gynecology, p. 460)—"In a twin birth neither the first child, which by section of the belly is brought into the world nor the one coming after can attain the rights of heirships or priestly office." Therefore, we should not regard this operation, as we slowly gather the links that bind us to the past, as a mythical story of the poets or a marvel of ancient times and ancient races.

From these facts we perceive how amid the vicissitudes of mankind and fluctuating conditions of nations, that order of Numa, the Wise, was ever kept up. How many infants were saved after the flickering candle of the life of their mothers was extinguished will never be known until the great day of reckoning.

The Pars Aestiva of the Roman Breviary informs us, that St. Raymond Nonnatis, born about 1190, died on the last Sunday of August 1240, was brought into the light of the world taken from the side of his dead mother.

When the Cæsearean section was first performed upon the living woman, no one knows. The well-known cases recorded by Nicholas de Falcon, in 1491, are frequently quoted. About the same period Jacob Neifer, a Swiss peasant, performed it successfully upon his wife. The general opinion, however, is that it was not greeted with favorable acceptance until a much later period.

We know, too, that this operation has been performed by savage tribes in Asia and Africa for centuries and, according to certain travelers, with considerable success. (Johnson's Enc.,

vol. 2, p. 468). This statement has been confirmed time and time again. We do not deem it advisable to accept it until more *prima facie* evidence is brought forward, sustained by proper medical authority; therefore, we think it should not be considered absolutely, but only relatively.

On account of a work published on this subject by Rousset, 1581, physician to Catharine de Medici, proving the possibility of saving both mother and child, great enthusiasm was aroused throughout France. Indeed, we are told by a contemporary, a Dominican Friar, Scipio Merunia, that Cæsarean section was as common in France as blood-letting in Italy (Cazean and Tanier, v. 2). Surgeons of that day resorted to it without any indication of its necessity. So terrible had it become in its consequences and so widespread in its evil that the more sober-minded took up arms against it under the leadership of Marchan (*idem*, vol. 2, p. 1030). So well did they succeed in their endeavors that the operation would soon have passed into the land of oblivion but for Gaspard Bauhin, who came forward with fresh proofs of its possibility.

The seventeenth century is marked with unfavorable criticism and opposition. No light is thrown upon the successful operation, but all unsuccessful ones are recorded in a spirit of elation, as marking an epoch of reformation in all ideas and thoughts. It is needless to seek the cause. History is written so plainly that every fair-minded student sees clearly the reason.

In the year 1749, Simon read a remarkable paper on this subject before the Royal Academy of Surgeons, but it was characterized by credulity rather than accuracy. Valpeau, in Paris, reports that no creditable success was made. In France, especially during the latter half of the eighteenth century, agnostic and materialistic philosophy began to permeate and not only to permeate but to obtain a firm foothold in all sciences and professions. There is little wonder, then, that Cæsarean section made no progress, since embryotomy was employed under all necessary circumstances. A learned author of 1860 says, that out of 424 cases reported, 210 died, making the chances of a success 1 to 1, supposing all accounts be accurate, yet presenting fearful odds when it is remembered that the delivery may be accomplished without risking the life more than in many instrumental de-

liveries (Smith's Surgery, vol. 2, p. 585). In Ireland, several instances are related in *Dublin Review* of March 1858. In the same magazine, statistics from 1830 to 1850 show that the operation was performed successfully in more than two-thirds of the cases, though it was also shown that in the remaining 113 it was not tried until the lives of both mother and child were despaired of.

O'Kane, writing in 1860, declares: "The operation is comparatively rare, either in England, Ireland or America. The reason is one which shows that little account is made of Christian faith and morality in certain surgical schools. It is that practitioners are commonly taught to have resource to another operation by which the infant is ruthlessly destroyed in order to save the mother, or even to spare her extraordinary pain. With us, therefore, a surgeon can hardly be found willing to attempt the operation while the mother is living." (O'Kane on Rubrice, p. 85).,

In the United States, Doctor Gibson, of Philadelphia, performed Cæsarean section on the same woman seven times with success. Jeter, of Georgia, in 1852, operated most favorably. Doctors Page, Doherty and Neal of Philadelphia, about the same period, successfully accomplished the same thing.

The same operation in 1739 was performed upon one Mrs. Barnes, in the parish of Clough, Kilkenny County, Ireland, mother and child surviving. She was afterwards blessed with three children through regular channels. In 1866, according to Playfair, the mortality rate was 89 per cent; according to Cyser, 79 per cent. In 1870, the mortality rate dropped to 40 per cent; in 1876, to 25 per cent; in 1882, to 11 per cent. Harris of Philadelphia had a mortality rate of 42 per cent in 1868-1879. In 1884 the Porro operation came into vogue and the rate dropped to 4 per cent. At the present time the rate ranges between 1.12 to 2.5 per cent, depending on conditions. The rapid decrease in the mortality rate is readily understood; it simply spells antiseptics, asepsis and improved technique.

Within the past few years vaginal Cæsarean section has been advocated in cases of placenta previa centralis and eclampsia. The conditions presented in these two complications of pregnancy are so well known and so thoroughly appreciated by every one present, that it must ap-

peal to each and every one of us as the only safe manner in bringing to a successful termination the end of that which is liable to result in the death of both mother and child. In the cases of placenta previa, you have not only to contend with the ante-partum hemorrhage, which you must have, but count the number of cases you have had, and how many cases of post-partum hemorrhage have you had to treat? By performing a Cæsarean section, you overcome all of this and as a rule you have not the post-partum hemorrhage. In the other condition, eclampsia, by simply incising the anterior and sometimes posterior lips of the cervix, you can extract the child quickly and without danger, while your patient is in the best possible condition, namely, under an anæsthetic. If you desire to bleed your patient, you can do so, because you have the incisions in the cervix for that purpose, if you care to utilize them. The mortality rate ranges from 1 per cent to 8.5 per cent, according to circumstances.

Under the most unfavorable circumstances hysterotomy has been performed. For instance, an illiterate Irish midwife operated with a razor upon a poor farmer's wife in 1738, removing a dead child, and her patient completely recovered; and cases are known in which women have operated upon themselves with perfect success (Chambers Enc., vol. 11, p. 82; Reid's Gynecology, p. 46). Eight cases are recorded where women have been gored by bulls, with six recoveries.

We grant that we have only brought forward a few cases from the many to show how Cæsarean operation has been performed successfully through a long chain of years, but we have no hesitancy in declaring that the losses could have been minimized had the attending physician not delayed in operating. Surgeons wavered about this from the time of Mareceau, who, in a case he was attending, from false fear declared: "The child had been dead, to all appearances about four days and I told all the assistants that she could not be delivered. They asked me to perform the Cæsarean section, which I did not wish to do, knowing it was always certain death to the mother." This poor woman died with her infant *in utero*, twenty-four hours afterwards.

Physicians, I repeat, up to thirty years ago, were in the majority who refused absolutely to operate from foolish, false fear, and either de-

layed too long or resorted to craniotomy. Those days of pusillanimity are now over and the surgical knife has given to encircling arms bonds of maternal love, children innumerable.

Now, we are compelled to turn to that other subject, embryotomy. There have been, and even are at the present day, physicians who hold that the child should be destroyed rather than risk the life of the mother. Just think of that sentence: "Risk the life of the mother!" In our day of enlightenment and from the statistics that we have quoted, is not the risk greater from embryotomy than from a hysterotomy? We must take into consideration the number of cases of infection after embryotomy compared with Cæsarean section. In these days a surgeon can always be found to perform the Cæsarean section.

The number of deaths in these days from embryotomy is so far in excess of those from hysterotomy that we should not even consider an embryotomy, even though we know that the child is dead. When we perform an embryotomy, we do risk the life of the mother, but when we perform a hysterotomy we subject the mother to the least possible risk. The only possible exception would be where the woman is already infected, or even when infected the Porro operation may produce good results. An erudite surgeon in 1866, discussing the Cæsarean operation, says: "But the feeble and uncertain life of the infant who is connected with the external world only through its mother, who as yet has neither thought nor affection, hope nor fear, can it be compared to that of a young woman associated with those around her by a thousand social and religious ties? Or, will the survival of this poor child fill the void left by the death of its mother? And, lastly, can society at large even hope to receive from a new born infant the duties it had a right to expect from the adult woman?"

These arguments seem to carry us back to the time of Sparta, when every child which was not in perfect state of health when born was destroyed. But to-day, in a time of medical advance and scientific attainments, the principle is, "We live to save,—not to destroy." For, even though the child unborn in the womb may not be as valuable to society as the mother, still it has a right to its life. No one can destroy it or take it away unjustly. For it cannot be deemed an unjust aggressor, for to be such, re-

quires some volition on its part and there is none present. Divine Providence permits generation, combining with the act of the parents. Such being the case, then, a physician who performs embryotomy in preference to hysterotomy must be condemned and be relegated to the past, for the reason that he is not progressive and abreast of the age in which we live, and is therefore a hindrance to our noble profession and its advancement.

Life is what we want, and suffering is what we are striving to eliminate, and happiness our ultimate goal. Therefore, the Cæsarean section will give all these and the embryotomy none of them. For if such a doctrine was disseminated, then at once abortion would be considered legitimate and valid on the grounds that if a child is an unjust aggressor and must be destroyed because it cannot pass through the regular channels of nativity, then every woman who does not desire children but simply copulates for pleasure,—not for the end of sexual intercourse, which is children,—may destroy the fetus at will, because she declares it is an unjust aggressor. So that, if we grant embryotomy as legal, it necessarily follows that we must admit abortion as legal. One is as broad as the other. To what end such admission would lead no one knows. We would have to bid farewell to all humanity, farewell to love and mercy, which binds the human race in delicate chains of fellowship and comradeship.

131 North Washington Street.

COLONIC INTOXICATION—ITS RELATION TO RECTAL DISEASES.*

By E. H. TERRELL, M. D., Richmond, Va.
Associate Member Proctologic Society.

Taken as a whole, colonic intoxication is an immense subject. It would require volumes to cover it. In this paper only some phases related to diseases of the rectum will be considered.

Until a few years ago, the fact that the organism might be invaded by microbes from the intestinal tract, or that it might be poisoned by products generated within it, was looked upon with skepticism. Now we all admit that such is of common occurrence, being met with daily in some form by most every physician.

The importance of intestinal toxemia cannot

be measured entirely by its frequent occurrence and the immediate discomfort and suffering it produces, for undoubtedly it strongly predisposes to other organic and many infectious diseases. A great variety of pathological conditions has been mentioned as etiologic factors in the production of this most prevalent disease, and, no doubt, each one is of considerable importance, but the problem which confronts us, in every case, is to locate and remove these causes. This is often no easy task, for the disease may be produced or influenced by affections in any part of the alimentary tract from the mouth to the anus.

Sometimes in order to make a correct diagnosis requires the combined services of the laboratory man, Roentgenologist, abdominal surgeon and proctologist. Of course, the majority of cases are not so difficult, a carefully taken history giving us some clue as to the location of the pathology. The abdominal surgeon has made wonderful strides in the management of those cases due to adhesions, bands, kinks, etc., and by the newer methods of diagnosis and treatment is able to relieve a great many of these sufferers. Often times, however, results would be more satisfactory if the after-treatment were given greater attention. A gut which has been held out of position or bound down by adhesions for a long time necessarily has undergone certain pathologic changes in its walls, and it is assuming too much to expect it to again functionate properly without some kind of treatment or training.

By far the majority of cases of intestinal intoxication which I see are associated with constipation. On the other hand, the most intense form is often found in diarrhoea. In every instance I make a thorough abdominal and proctoscopic examination. Not infrequently a chronically inflamed appendix or gall-bladder disease, or both, are found to be the predominating causes. The presence of these diseases does not preclude the possibility of an associated inflammatory condition of the rectum, but, on the other hand, makes the chances of the existence of the latter more probable. I believe with Dr. LaRoque (*Old Dominion Journal*, May, 1912) and others that bile tract infection is often secondary to some area of inflammation located within the portal system. If this be true, no doubt many cases of cholecystitis result directly

*Read before the forty-third annual meeting of the Medical Society of Virginia, at Norfolk, October 22-25, 1912.

from inflammatory and ulcerative lesions in and about the rectum. It is a well-known fact that stasis of the fecal current, in any part of the intestinal tract, may produce reflexly an impaired function of another part of the gut. In this manner inflammatory diseases of the rectum which interfere with normal defecation, have a marked causative influence in appendicitis.

If appendicitis and gall-bladder infections are produced by affections in the lowest portion of the intestinal canal, then at the same time while operating for these secondary lesions, it would seem most appropriate to seek for and remove the primary focus in the rectum, if it still exists. More in conformity with our present methods of preventive medicine and surgery would be to give more attention to inflammatory diseases of the rectum in the early stages, when, it is believed, many of these more serious abdominal infections would not occur.

Among the important functions of the intestines after digestion is complete is to convey the residue and expel it. In this are certain poisonous products which nature did not intend to be utilized by the body, but should be thrown off with the stool at more or less regular intervals. As long as the feces remain in the intestinal tract, particularly if there be moisture, absorption is taking place. If defecation is delayed, chemie and putrefactive changes are going on, forming new compounds which in turn are absorbed into the circulation. If this condition continues for a sufficient length of time, and to a greater extent than the liver and other emunctories are able to care for, then chronic systemic intoxication is produced.

In atony of the bowels, probably the most frequent cause of constipation, the feces are not propelled through the canal as rapidly as should be. The fluid portions are gradually absorbed, and when the remaining contents reach the sigmoid and rectum they are hard, dry and irritating. Pressure and the passage of large fecal masses through these portions of the gut set up an irritation and produce abrasions through which the toxins, or in some instances infectious agents themselves, gain entrance into the circulation. If the patient, as is usually customary in a condition of this sort, is in the habit of taking strong cathartics to force the movement, then the intoxication is greatly ag-

gravated. From the hard, dry stool there can be but little absorption, but when this is liquefied by the action of a purgative, and at the same time, peristalsis is strongly stimulated, the toxins are forced into the circulation. No doubt every practitioner has seen this demonstrated clinically many times.

It often happens that a patient suffering from a so-called torpid liver will have symptoms of acute toxemia with a rise of temperature following the administration of a brisk cathartic. I have seen many persons habitually constipated who seemed to suffer little, if at all, from toxic symptoms except when forced to take a purgative. One patient, whom I have recently treated, would often go for two weeks or longer without a bowel movement if he had important business to attend to, for invariably he would be compelled to lay off after taking a pill.

In constipation, with fecal stasis in the rectum, there is pressure upon the vessels interfering with the venous circulation. Furthermore, in auto-intoxication there is a systemic disturbance of the circulation with a contraction of the superficial blood vessels and a dilation and congestion of those internal. These are some of the causes of hemorrhoids.

The following case report illustrates very well the relation between hemorrhoids, constipation and intestinal auto-intoxication:

Mr. F. N., age 25, came to me for treatment on May 2, 1912. He gave the history of having suffered from severe constipation and hemorrhoids for ten years. Most of the time he felt drowsy, had no energy and a very poor appetite. There was never a bowel movement without taking very strong purgatives. He would refrain from these as long as possible because after every stool he suffered intense pain and would bleed profusely from the hemorrhoids for a day or more afterwards. He would go from one to three weeks without an evacuation, and, in fact, felt much better and his toxic symptoms less severe when his bowels did not move. His rectum had become so accustomed to the presence of feces that it had lost all sensation. He said he had not had a desire to defecate in years. For business reasons he could not afford to lose time to be operated on for hemorrhoids, and I very reluctantly undertook to treat him for his constipation, thinking it a

hopeless task. I have never attended a patient with more satisfactory results.

The treatment, begun on May 2d, consisted of a regulation of his diet and habits, the use of the vibrator to the abdomen and the introduction of anal dilators daily. The only internal medication was strychnine, grain $1/30$, three times daily. He was given strict orders to take no laxative.

On May 5th, three days after treatment was begun, his bowels moved and have continued to do so regularly since. These stools at first were forced, he having orders to go to the toilet at the same hour each day. After about ten days he had a desire for defecation, sensation then beginning to return to the rectum. In a very short time his toxic symptoms cleared up, and the bleeding stopped. He has continued to improve and, when seen a short time ago, seemed perfectly well. The hemorrhoids have greatly diminished in size, and, I think, will gradually disappear altogether if he continues regular in his habits.

In some instances it takes several months for all of the toxic symptoms to disappear after the constipation is cured and the establishment of regular movements. Hypertrophy of Houston's valves not infrequently cause a stasis of the bowel contents by encroachment on the normal calibre of the gut. This condition is usually secondary to constipation from some other cause, most often atony or so-called habitual constipation. When these valves cause an obstruction, it is necessary to incise them, or a better method is to apply Pennington's clips, which cut their way through by pressure necrosis. After the obstruction is removed, it may or may not be necessary to treat the atony. Often a regulation of the diet and habits is sufficient. I have recently relieved an intractable headache by the simple method of clipping these valves.

Fissure *in ano*, invaginations, prolapse, stricture, ulcerations of the rectum, and, in fact, every usual disease of this organ is at times a causative factor in auto-intoxication. These either act by interfering with peristalsis and the elimination of the toxins from the intestinal canal, or, as in ulcerations, by increasing peristalsis and forcing the poisons into the circulation through the ulcerated surfaces. In conclusion, and illustrative of these somewhat opposite conditions, I desire to submit briefly the two following case reports:

Mr. A. F. J. was referred by Dr. J. Frasia Jones, of Richmond, on April 4, 1912. The patient, a boiler maker by trade, was naturally strong and robust, but for two years had suffered much from indigestion. His food was selected with the greatest care, and it had to be prepared always in a certain manner. He seemed unable to digest fats at all, and never ate a meal without following it with some digestive agent. He took a cathartic as regularly as he retired at night. He suffered a great deal from headache, and often had neuralgia. At times he became dizzy and had spots before the eyes. He came to me because of pain in the rectum. This was almost constant, but was intensified when walking, and usually became severe following a stool. The pain was referred along the course of the sciatic nerve of the left side.

From the symptoms as given by the patient, I strongly suspected the presence of an ordinary anal fissure, but upon examination none could be found, although the sphincters were hypertrophied and spasmodic, indicating some acute inflammatory process nearby. Searching as carefully as I could, I was unable to locate the source of the symptoms. A second examination was as fruitless as the first. Upon the third, I was able to insert a very small, blunt-pointed probe, bent upon itself at a sharp angle, into the crypt of Morgagni, situated to the left of the posterior commissure. There was no external evidence of disease of this particular crypt, but when the probe entered it he suffered intense pain.

Excision of this crypt gave him entire relief from pain after a few days. A few treatments with a vibrator to the abdomen, the use of anal dilators daily for a short time, and discontinuing all medication has cured him entirely. His bowels move regularly, he eats what he chooses and his digestion is perfect. I have reported this case because disease of the crypts is so often overlooked, and to show what relation apparently insignificant lesions may have toward the production of intoxication. Inflammation of these little pockets is not such a rare condition as is supposed. I have seen and treated no less than six of these cases during the last year. All of them were constipated and toxic to a greater or lesser extent.

The next and last case which I desire to report is one of stricture of the rectum with a toxemia almost as severe as that in typhoid

fever. The patient, a young woman 30 years old, referred by Dr. Kinsman, of North Carolina, was seen first in May, 1911.

A brief history of the case is as follows: Health not good since three years old. Has suffered much with rheumatism, having had many acute attacks. Had dysentery a number of times, usually lasting only a few days. In May, 1910, one year previous to my seeing her, an attack of dysentery began, which lasted with short intermissions until her visit to Richmond. She suffered much from nausea and the menses were irregular. Was reduced in weight from 135 to 95 pounds. She was brought to the hospital on a stretcher, not being able to sit up.

On admission her temperature was 100.5, with a rapid and thready pulse. Cheeks were sunken, and skin dry and parched. The stools were frequent, consisting mostly of bloody mucus and pus. The patient was so nervous and hysterical that she had to be etherized to make a digital or proctoscopic examination. There was found an almost complete closure of the intestine at the junction of the rectum and anal canal by a thin annular stricture. This was probably not more than one-third of an inch in thickness, and was broken up by the finger. The sigmoidoscope was then easily introduced. Above the stricture ulcerations were so large and numerous it was difficult to find a portion of mucous membrane intact. Under treatment she gradually improved and in a month's time was able to return home. I saw her two months ago. She has gained her former weight; eats heartily; bowels move only once or twice daily; all of her toxic symptoms have disappeared, and she has no pain. She uses a dilator about once a week, and other than this takes no treatment.

Stricture of the rectum produces a toxemia of the severest type for several reasons. There is mechanic obstruction to the solid feces, causing an accumulation above the constriction. At and above the stricture are always numerous ulcerations with exposed nerve endings. These latter are irritated by the feces, producing an almost continuous peristalsis and frequent liquid stools. The patient has both a diarrhea and constipation. The ulcerations are constantly bathed in the liquid portion of the feces, which is laden with toxic products. The absorption of these poisons through the denuded mucous membrane is greatly aided by the abnormal peristalsis of the parts.

I know it is said of specialists that they are often inclined to over-value the importance of the line of work in which they are engaged, but, in this instance, I feel justified in saying that most cases of colonic intoxication are associated with, if not caused by, some inflammatory or ulcerative lesions of the rectum. Surgeons throughout the country are doing much operative work for colonic stasis and constipation. It appears to me that it would be well, and certainly could do no harm, to see, before opening the abdomen, that the exit to the intestinal canal is clear.

304 East Grace Street.

ACUTE INTESTINAL OBSTRUCTION.*

By EL. C. S. TALIAFERRO, M. D., Norfolk, Va.

The subject which has been selected for tonight is one, I think, that should be of great interest and importance, not only to the surgeon, but to the medical man as well. While the subject is an old one, I feel that too much cannot be said, or one cannot become too well acquainted with the pathological conditions which produce obstruction, or the serious consequences which follow, if it is allowed to go unrecognized.

In this short paper I shall not attempt to mention all the important points of this great subject, but simply remind you of some of the things which "Ye yourselves do know," and hope the things which I leave unsaid will be brought out in the discussion.

When one realizes the intestinal tract is a muscular tube, capable of secreting, absorbing and excreting, with the power of propelling its contents by its own muscular contractions, and with the abrupt changes in its size and course, one is surprised that there are not more cases of intestinal obstruction.

Intestinal obstruction is either mechanical or reflex. It may be produced by foreign bodies within the intestinal tract, as fecal impaction, worms, enteroliths, etc. Within the last two years I have operated on two cases due to this cause. Intestinal tumors may also give rise suddenly to occlusion of the bowel.

Obstruction is likewise produced by causes acting without the intestines, as bands of adhesions, elongated or diseased appendix, can-

*Read before the Surgical Section of the Norfolk County Medical Society, January, 1913.

cerous tumors of the peritoneum, mesenteric glands or ovaries, uterine fibroids, etc. Obstruction may be due to adherent Meckel's diverticulum, slits in the mesentery, fibrous bands, adherent intestinal loops, and to congenital subperitoneal pockets in the neighborhood of the femoral opening and inguinal canal.

Volvulus is the twisting of the intestines. This is frequently due to laxity of the mesentery and also to constipation. Obstruction is in many instances produced by prolonged exposure or pulling on the intestines during operations, and frequently operations on the pelvis, where the patient is placed in a marked Trendelenburg position when the intestines are packed up under the diaphragm and no attempt is made to straighten them in position, or to pull the omentum down at the conclusion of operation. Obstruction is caused also by the leaving of foreign bodies in the abdominal cavity, such as sponges, instruments, etc., and in closing the abdominal incision, in stitching the omentum and even, at times, the intestines to the abdominal wall. Peritonitis and extensive operations on the mesentery play an important part in obstruction.

Obstruction by invagination is especially liable to occur in children; it may be either in the small or large intestines.

Occlusion is produced by strangulation, which may take place in an abnormal orifice of the mesentery or omentum, or in the foramen of Winslow; bands of adhesions may form, and by this manner a knuckle of gut may become constricted. Embolism of the mesenteric artery should not be overlooked when searching for the cause of intestinal obstruction. This occurs occasionally and is invariably fatal.

Obstruction may be due from reflex causes, such as kidney colic, hepatic colic, injury to the spinal cord, blows upon the abdomen, etc.

The first symptom is usually pain, which may come on slowly, or at times rather abruptly. At first it may be general, but in a short while usually localizes itself over the obstructed area. Nausea and vomiting take place early, but may be delayed or either absent; especially is this so if obstruction occurs in the large intestines. The vomiting first consists of the contents of the stomach, then bile stained fluid, assuming after hours or days a fecal odor. The fecal material is rarely or never vomited. At first the

abdomen may be contracted, but later becomes distended. Constipation is absolute, though an enema may relieve that portion of the bowel below the obstruction. When the bowel is once emptied, there is no further escape of gas or feces from the rectum. The temperature may be subnormal, or slightly elevated. Prostration and loss of strength are early symptoms. The pulse is small and rapid; the face is pinched, pale, and expression anxious. Skin is cold and clammy, while the voice is frequently reduced to a whisper.

Physical examination of the abdomen may reveal a tumor, though not always. Invagination occurs more frequently in children than in adults. The onset is usually sudden; the child gives a piercing shriek and the depression is great; vomiting is very persistent. Symptoms continue for three or four hours; the vomiting persists, but is not so severe. The bowel movements may be at first fecal and later bloody mucus. In these cases we are usually able to make out an oblong tumor which has a peculiar sausage-like feel. Frequently, by the introduction of the finger in the rectum, we are better enabled to detect this sausage-like mass. The urine is usually diminished. Indican is present in increased quantities after the first twenty-four hours if the obstruction is in the small intestine; if in the large, it may be absent or but slightly increased.

Obstruction of the intestines is to be differentiated from peritonitis. In the latter we have the history of peritonitis preceding the symptoms of obstruction, pain is more general, and the obstruction of gas is not complete. The temperature is usually higher, thirst is greater, the thighs are fixed upon the abdomen. Pulse is small and rapid, the patient extremely restless, breathing is accelerated, and the leucocytes are increased to a greater per cent. in peritonitis than in obstruction.

Obstruction of the bowel is to be differentiated from strangulated hernia by examination of the femoral openings and inguinal tracts; from typhoid perforations, by the history of temperature and other signs of typhoid; from perforation of ulcer of the stomach and duodenum, by history of indigestion; from appendicitis, by pain, tenderness and rigidity over the appendix; from abdominal crisis, by the history and other symptoms of tabes dorsalis.

In this brief paper I have not touched upon the symptoms of chronic obstruction, for so soon as chronic obstruction becomes complete it is then acute.

Proceedings of Societies, Etc.

NORFOLK COUNTY MEDICAL SOCIETY— SURGICAL SECTION.

Reported by FRANK H. HANCOCK, M. D.

Intestinal Obstruction

Was the subject for discussion at the January, 1913, meeting of this section, Dr. R. L. Payne presiding.

Dr. Kirkland Ruffin, addressing himself to the treatment of the condition, said that the involved loop will often descend into the pelvis, and search should always be made in this region after exploring the cecum and the hernial sites. If it could not be found there, Kümmel's method of allowing the intestines to escape from the abdomen could be followed, protecting them, of course, with hot towels.

After releasing the constriction, the distended coils may be relieved of their contents by an incision, as described by Moynihan, or by the insertion of an instrument especially devised for that purpose by Lilienthal.

This procedure is not always necessary, but is often used where the occlusion has occurred high up, retaining, especially, the duodenal contents which are highly toxic.

The symptoms and diagnosis having been dwelt upon, the speaker said he would not go extensively into them, but would reiterate those cardinal ones of pain, vomiting, distention, coprostasis, and borborygmus, in post-operative obstruction.

The pain is sharp and colicky, due to violent intestinal peristalsis, the more marked as the distention becomes greater from accumulating gas and fluids.

Acute abdominal obstruction may be reflex, paralytic, or mechanical.

The former may occur in pneumonia, renal disease with calculi, gastric and duodenal ulcers and appendicitis. The speaker reported a case before this Section last year of acute obstruction in which he was unable to find the cause, though the pain was marked in the left lumbar region.

Following laparotomy the bowels moved, but pain persisted. In a week or ten days, as nearly as I can recall at this moment, a calculus was voided, and all pain and obstructive symptoms disappeared.

Dr. Ruffin here called attention to a very important point in the consideration of obstructive symptoms following abdominal operations, where much handling of the intestines has been required, and sometimes where there has not been a great deal. A certain amount of atonic paralysis follows where there has been traction upon the mesentery, long exposure to the air, evisceration, separation of extensive adhesions, etc. The bowels become distended, there is moderate abdominal pain, sufficient to prevent the use of the abdominal muscles for the purpose of expelling flatus through the rectum, and we have a simulation of obstruction, or an actual paralytic ileus. These symptoms disappear usually in from 24 to 36 hours after their onset, but in the meantime they have been the cause of great discomfort to the patient, and of anxiety to the surgeon. If this paralytic ileus persists, it becomes a matter of almost inextricable confusion, and certainly presents a pressing claim for the finest art of the diagnostician. Let those surgeons who would rashly reopen the abdomen upon the mere appearance of obstructive symptoms remember that there is such a condition as this that I have described, that it is a veritable nosologic entity.

In regard to post-operative ileus of the mechanical kind, which so interests this Section, it is well to remember at least that the condition may be simulated. There is no more perplexing problem in all surgery than this question of when to reopen the abdomen in the presence of obstructive symptoms, because these symptoms vary so—vary in their intensity, in the predominance of the one or the other in toxicity, as manifested by the patient's general condition, and in the time of their occurrence.

Hysterical and nervous patients, always acutely sensitive, make themselves very ill following operation, and will give the impression, in many cases, of acute abdominal mischief.

The intensity of the constitutional symptoms, high fever, rapid pulse, and anxious face, are undoubtedly dependent upon the site of the occluding adhesions along the small intestine, whether it is high or low, as has been finely shown by Dr. Budd. Many different investiga-

tors have established the same fact, that is, that intestinal contents from the obstructed segment become less toxic directly as the obstruction nears the rectum. Therefore, if the occlusion is somewhere along the ileum or lower jejunum, the symptoms are exceedingly tardy, and it is several days before the picture is completed. In fact, you may have an entire suspension of vomiting for several hours—six or eight—following lavage, and a sense of security that is later to meet with a stinging disappointment. It is not a question of complete obstruction, but *where* that obstruction has occurred, how near it is to the toxic-bearing properties of the duodenal mucosa.

Nothing more clearly shows this than the experiments on dogs, cited by Dr. Budd. When the intestinal barrier was along the ileum the dogs lived for weeks, and where it was duodenal the dogs died in a few hours. Death from bowel obstruction may be due therefore to two things, as put forth in Draper's conclusions: duodenal, and purely physiological death, due to some unknown disturbance of the duodenal secretion, or balance; and ileo-colic, and purely pathologic death.

Dr. E. E. Feild reported an interesting case of obstruction having occurred from the accumulation of *beans* in Lane's kink. This is interesting from several standpoints, he said, first, because the obstructed segment is found in the pelvis; and is in accord with the suggestion made by Dr. Ruffin, that the pelvis is often the place to look for the barrier. It is interesting as corroborative and confirmative evidence of Lane's primal contention, that this section of the ileum, near the appendix, hanging over the brim of the pelvis, is in so dependent a position that it often sags its way into that fossa, even without the fecal current being augmented in any way.

Now these beans had travelled the entire length of the small intestines without delay of any kind, and arriving at this loop, entered, and tumbled it over into the pelvis, producing complete stasis.

Dr. C. J. Andrews referred to the use of alum injections in the earliest stage of obstructive symptoms, and reported a case where obstinate constipation threatened to become completely occlusive. A high alum injection was given through the rectum, and in an hour or two a large quantity of partially digested and highly

agglutinated beans passed, having been dislodged from some point in the colon where they had accumulated.

Dr. Andrews was asked to describe the process of this alum reduction. He said it was a matter of some dispute, but many surgeons believed it highly efficacious, nevertheless.

Dr. Israel Brown suggested that the alum, coming in contact with the beans, effected sufficient shrinkage for the beans to pass. The point was not disputed.

Dr. Edward T. Hargrave, who has just returned from a several months stay in Vienna, was asked to tell the Section what he learned over there about intestinal obstruction.

Dr. Hargrave said that he devoted himself to other lines of work while there, but in his private practice in Norfolk he recalled three cases of post-operative ileus he had seen in the past five years. In two of these the involved segments were high up and the symptoms were correspondingly acute and grave.

The cases were very definite, and operations were quickly performed, and both patients lived. In the third case, the loop attacked was near the ileo-cecal valve, and the symptoms developed very slowly; not, in fact, until such quantities of fluid had poured into the intestine from hypersecretion from inflammatory exudate and hemorrhage as to distend and overflow the intestinal tube, together with the gas which was developed from the fermentation of all these retained products.

Dr. Hargrave recalled at this moment another case with acute obstructive symptoms, which died with unusual promptness. It was discovered post-mortem that the superior mesenteric artery had become occluded and the end was thus inevitable.

Dr. W. L. Harris said that the high mortality in acute obstruction was often due to the general practitioner waiting, and waiting, for the symptoms to subside, giving purgatives in the meantime. It was the imperative duty of the medical profession to remonstrate vigorously against this egregious and fatal ignorance. Especially is this true in the intussusceptive form of obstruction that occurs in children. He had had occasion heretofore to make emphatic remonstrance against this most irretrievable blunder in the entire field of medicine, and he took this occasion to renew the protest.

Dr. Israel Brown had a case of post-operative

ileus to occur in his practice ten or twelve years ago that was probably due to faulty technique. In the last year he had another case. He had been forced to do a great deal of dissecting, and of enucleation of inflammatory masses, in the pelvis, and was unable to approximate the raw surfaces. An adjacent loop of ileum adhered and the lumen became occluded. "I was half suspecting it," said Dr. Brown, "and I hurried in to relieve it. An uneventful recovery followed."

Dr. Taliaferro, closing the discussion, said he did not deny the value of paying proper attention to post-operative paralytic ileus, but he did insist upon the fact that, if you do not operate early upon dynamic ileus, your patient will die, whereas, if you do mistake the condition and there is no actual mechanical obstruction, you have not done any great harm, providing only you have operated swiftly, cleanly, and gently.

Section adjourned.

Analyses, Selections, Etc.

Treatment of Asthma.

S. Solis-Cohen, Philadelphia, says that among others two common varieties of asthma may be recognized, one associated with bronchial spasm and the other with angioneurotic edema of the bronchial mucous membrane. In both varieties the hypodermic use of epinephrin preparations (about 20 minims of a 1:1000 solution) will give immediate relief. In the spasmodic variety it may endure for quite a little while, but in the other it is often disappointingly transient. In both, the series of paroxysms may be broken up by the intramuscular injection at bed time, for three successive nights, of the following solution:

℞ Scopolamine hydrobromidegr. 1/200
Codeine or morphine hydro-
chloridegr. 1/6 to 1/2
Strychnine nitrategr. 1/30
Waterm. xx to xxx M.

There is nothing equal to aspidospermin to prevent recurrence or to keep the patient comfortable during the intervals between injections. Quebracho, of which it is one of the active principles, may be used instead, the dose depending upon the preparation and the patient. One teaspoonful of the fluid extract is usually effica-

cious, but frequently it provokes intense nausea, and for that reason the alkaloid must be employed. Of amorphous aspidospermin, a mixture of the various quebracho bases and some uncertain residue, the dose is from 1 to 1 1/2 grains. Of aspidospermin Fraude-Merck, the dose is from 1/60 to 1/30 grain, though the writer has been in the habit of giving five or six times this quantity. The sulphate of this is used hypodermically in doses of from 1/60 to 1/30 grain. As a rule, it is best to give the drug in small doses hourly. When the larger doses are used, intervals of two, three or four hours should elapse.

If no benefit is experienced within forty-eight hours, none need be expected from longer continuance. It is not well, as a rule, to continue the use of the drug without intermission for much longer than a week at a time.

In spasmodic cases which do not yield to the treatment outlined, one of the best agents to overcome the paroxysm is *passiflora incarnata*, a good tincture or fluid extract being used. The dose is from 10 drops to 2 teaspoonfuls, cautiously employed with due regard to the susceptibility of the individual patient. It is a powerful narcotic, and an overdose may produce collapse, which is usually preceded by warning symptoms of nausea and vertigo. It can, however, be given in 10, 20 or 30-drop doses every 10 to 30 minutes until the maximum above mentioned has been reached, unless relief has been brought about earlier, or toxic effects seem to be impending.

Inhalations of amyl nitrite and injections of nitroglycerin are sometimes useful in the spasmodic cases, but not so often as one would desire. Injection of atropine (gr. 1/60) will sometimes cut short a spasmodic paroxysm and prevent its recurrence.

In the urticarial (angioneurotic) cases, pituitary preparations, especially those derived from the posterior lobe, are sometimes more satisfactory than the adrenal preparations, and if effective, the benefit is more lasting. Picrotoxin is also valuable in the treatment of this class of cases. The dose is from 1/60 to 1/20 grain from three to four, or even six times, daily. Calcium preparations, and parathyroid gland, ergot and barium chloride are likewise of service in the angioneurotic group of cases.

Abrams, San Francisco, overcomes asthma by concussion of the vertebrae. In the cases con-

sequent upon bronchial spasm, he concusses the seventh cervical spine, or applies there the sinusoidal current. In other cases he concusses the eleventh thoracic spine, or the third and fourth thoracic spines, or applies the sinusoidal current at these points. In two cases of the writer, Abrams demonstrated his method. In the bronchial spasm case he produced a spasm by concussing the thoracic spine and overcame it by concussing the cervical spine. In the other case the paroxysm was produced by concussing the seventh cervical spine and overcome by concussing the eleventh thoracic spine. In order that it may not be said that the effects were due to suggestion, Cohen remarks that the treatment was witnessed by four other experienced physicians and two internes, and that the patients were in different wards.—(*Critic and Guide*, January, 1913.)

Experimental Devascularization of Intestine With and Without Mechanical Obstruction.

Horsley and Coleman, Richmond, report twelve experiments, all on dogs, done under full anaesthesia, in which segments of intestine from the lower ileum, varying from two to five inches, were devascularized by cutting the attachment of the mesentery close to the bowel. In all except one the omentum was wrapped around the devascularized segment. In five instances the segment was obstructed by tapes at each end. Two of these dogs died from gangrene and perforation of the loop. One died after three days without perforation. One lived 13 days and the other lived 14 days. In seven dogs a loop of intestine was devascularized without being obstructed and omentum wrapped around the segment. None of these dogs died as a result of the operation. The authors conclude that either no toxic substance is formed in the devascularized segment of intestine which is unobstructed, or else this substance, if formed and excreted, is not absorbed by the normal mucosa. They emphasize the fact that in dogs at least a loop of bowel when separated from its mesentery and unobstructed may be properly nourished by wrapping the omentum around it.—(*Author's Abstract*.)

The Practical Import of Recent Work on Hysteria.

A hysterical symptom is merely one produced by suggestion, says T. A. Williams, Wash-

ington. Hence the disorder is a purely psychogenetic one. The stigmata, moreover, do not occur in the absence of medical examinations or other sources of suggestion. This is readily observed in simple cases, which are frequent, and may be ascertained by a profound analysis in nearly all.

Trophic symptoms and hyperthermia are products of somatic disorder, such as hyperthyroidism or latent infection, or they may be the artefacts of malingerers, and in neither case are they hysterical. Nor is emotivity hysteria.

The genetic idea, from which springs the hysterical symptom, must be sought in order to make therapeutics satisfactory. Any success of mere suggestive therapy is only temporary, and rather favors relapses by increasing proneness to further suggestions of all kinds. Rational enlightenment of the patient as to the mechanism of his symptoms is the key to success. Isolation as a means to this end is rarely required. Physical measures are a disadvantage unless specially indicated, as they divert attention from the real aim, which is psychotherapy. This should inculcate principles rather than details. But the minutiae of a psychomotor discipline need to be carefully shown to the patient and attendant. Cases illustrate these points.—(*Journ. Amer. Med. Assoc.*, Dec., 21, 1912.)

Iodine Fumigation in Gynecology.

Reynes, Marseilles, France, has used with much success this procedure, original with him. It is applicable in all uterine affections which may be treated by way of the vagina, as ulcer of the cervix, cervicitis, granular metritis, and uterine cancer after scraping the superficial layers of the tumor. Iodine vapor may also be introduced directly into the uterus, this method being used successfully in the treatment of post-abortion metritis.

The *modus operandi* is very simple: After careful swabbing of the vagina and cervix a small pledget of cotton which has been dipped in iodoform and passed through the flame of an alcohol lamp, candle or match, is introduced in the vagina. The combustion of the cotton is instantaneous, and the heat so generated is sufficient to set the iodine free, so that the vapor fills the vagina which has been previously dilated with a speculum. A deposit of iodine soon occurs in the vagina and on the cervix.

Another method consists of heating the tube

of an insufflator containing iodoform, the resulting vapor being expelled from it by the bulb, and thus brought in contact with the diseased part. Neither method requires any special apparatus, and it may be applied as easily in the home as in hospital practice.—(*Progres Medical*, December 30, 1912.)

Abdominal Pregnancy With Living Child.

Dr. J. Shelton Horsley, of Richmond, in a paper before the Southern Surgical and Gynecological Association, at Old Point, Va., December 17-19, 1912, reviewed the literature on abdominal pregnancy with a living child and reported a case. From 1809 to 1912 there are 104 cases on record. Regarding those cases as entirely successful in which both mother and child are saved and the child living a year after the operation, there are five such cases. The author reports a case which falls within these requirements. The patient was a colored woman in whom pregnancy was supposed to be normal until her physician was called in at about full term. He recognized abdominal pregnancy, as the uterus was empty. Dr. Horsley did an abdominal section and delivered a male child, well formed, and weighing six pounds. The mother made a satisfactory recovery, and a year after the operation both mother and child are well.

Infanticide, Abortion and Prevention of Conception.

Dr. L. Jacobi, New York, after briefly reviewing the history of these, gives a resume from those authors advocating the so-called neomalthusian methods. He then goes on to say that it is evident that prevention of conception is not a remedy for overpopulation only, but a powerful factor in improving the quality of the race. We may here appropriately consider the various groups of cases in which conception is best avoided.

The least objectionable are the strictly medical indications. There are many pathological conditions in which pregnancy and childbirth are equivalent to serious impairment and shortening of life, or even to death. There is no room for difference of opinion when a woman is afflicted with advanced tuberculosis, organic heart disease, grave changes in the kidneys, etc. Here the law permits even the use of artificial

abortion when pregnancy has supervened, and no one will hesitate to advise the patient to avoid becoming pregnant altogether. We have no right to demand the sacrifice of the mother's life for the sake of the progeny. Here prophylaxis of conception is undertaken in the interest of the woman.

A different indication is furnished by those diseases or hereditary defects of the parents which are likely to be transmitted to their offspring. Syphilis, insanity, degeneracy, and grave moral taints belong to the group. Here it is clearly a service to the race to desist from propagating imbeciles, lunatics and criminals. This might be called the eugenic indication for prophylaxis of conception, and the law, again, has recognized it. In some States there is a legal provision demanding the sterilization of confirmed or habitual criminals. Prevention of propagation is thus assured from the outset.

After the medical and the eugenic indications comes the economic one. This usually meets with opposition from certain quarters, yet no valid argument can be presented against it. It benefits the parents, it is decidedly beneficial to society, and it is even merciful toward the unborn and unconceived creature, which is frequently saved from a life of misery. If we have no right to demand a sacrifice of the mother for the sake of the child, neither have we the right to demand sacrifices which, though stopping short of being immediately fatal, nevertheless shorten and cripple the woman's life.

Finally, there are numerous and varied cases, when a woman, having conceived, will seek to interrupt pregnancy at any price. Obviously, here, if anywhere, prevention is preferable to "cure."

Such are the principal cases and conditions calling for prophylaxis of conception, and when this method of dealing with them becomes generally adopted, then will commence the period of seven lean years for all those who are now thriving by interrupting undesirable pregnancy. Who will deny that much unhappiness and misery will thus be averted, and that society will gain incalculably in consequence?

Finally, prophylaxis of conception cannot fail to exert an indirect influence on our current sex morality. By conferring upon women immunity from the most dreaded sequel of illicit indulgence it will undoubtedly tend to equalize the conduct of both sexes when confronted by

temptation, and by generally facilitating marriage, it is bound to contribute toward the establishment of more hygienic sex relations, which, again, must redound to the benefit of society at large.—(*Critic and Guide*, December, 1912.)

Wright's Solution in Infected Wounds.

Sometimes, says H. A. Royster, Raleigh, exit for wound discharges is best secured by discarding the usual packing and relying on the natural forces of gravity and least resistance. If these can be aided by a substance applied externally to the wound, so much the better, and he believes that such a substance is Wright's solution, which is as follows:

LOTIO SODII CITRATIS.

Sodii Citratisgr. ij.
Sodii Chloridigr. xx.
Aquae, q. s. ad.....oz. j.

The sodium citrate prevents coagulation, and the sodium chloride produces irritation. Both of these processes are desirable in any infected wound to insure efficient elimination of its debris. Wright proved the value of the solution as follows: In furunculosis, where it was found impossible to abort the boil by other means, he cut out of oiled silk a covering for the entire inflamed area, leaving a window at the opening of the furuncle, over which were placed several layers of gauze saturated in the solution and kept constantly wet. As soon as the irritation became annoying to the patient a dry dressing was put on for the time. In many cases this method is preferable to incision and old-fashioned drainage. In conjunction with Bier's method of producing hyperemia, this solution has proved of great assistance to the writer. Six cases of infected hands, arms and legs were thus treated in his clinic; and like treatment employed in gunshot wounds, empyema cases, and sloughing injuries produced by railway accidents. It has been found efficient in cases of so-called cellulitis occurring without history of injury. The wounds seem to drain of their own accord; the exudate is liquefied and dissipated, and the parts always clean up quickly. Royster thinks that the solution should be discontinued after this, when all the products of infection have disappeared, for his experience is that then healing is retarded by its continuation.

The method followed is to use the solution cold. Several layers of gauze are saturated and laid over the parts. A covering of oiled silk may or may not be employed; a thick, dry dressing may be sufficient. The gauze next to the wound is to be kept moist for such time as may be necessary.—(*International Journ. of Surgery*, November, 1912.)

In concluding his article, Dr. Royster states that "careful search has failed to reveal the publication of any previous paper dealing definitely with Wright's solution." In the department of *Analyses, Selections, Etc.*, of the *Virginia Medical Semi-Monthly*, March 22, 1912, there appeared an abstract from a paper entitled *Supplementary Home Treatment of Septic Wounds*, by S. W. Moorehead, Philadelphia, published in the *Therapeutic Gazette*, February, 1912. Since the appearance of the last named article the editor-in-charge of this department has used the solution with much success in infected wounds, abscesses, etc.

Book Notices.

Practical Medicine Series. Under General Editorial Charge of GUSTAVUS P. HEAD, M. D., Professor Laryngology and Rhinology, Chicago Post-Graduate Medical School, and CHARLES L. MIX, A. M., M. D., Professor Physical Diagnosis, Northwestern University Medical School. Volume IX. *Skin and Venereal Diseases and Miscellaneous Topics.* Series 1912. Chicago, Year Book Publishers. 8 vo. 237 pages. Cloth, \$1.25 or \$10 for series of 10 volumes.

This volume, which shows some illustrations, also includes a section on genito-urinary medicine and surgery. The editors, Drs. W. L. Baum and Harold N. Moyer, have shown their usual good judgment in the selection of their papers for abstracts.

Diseases of the Skin and the Eruptive Fevers. By JAY FRANK SCHAMBERG, M. D., Professor of Dermatology and Infectious Eruptive Diseases, Philadelphia Polyclinic and College for Graduates in Medicine. Second edition, revised, 8 vo. 573 pages. Philadelphia and London: W. B. Saunders Company. Cloth, \$3 net.

The author presents in this volume, besides the ordinary dermatoses, a separate chapter on the exanthemata in which, while the general

symptoms are described briefly, all that relates to the skin manifestations is exhaustively treated. The usual and the accidental eruptions of such acute infectious diseases as are sometimes accompanied by skin lesions are also described. In addition, there is a special chapter on actinotherapy and radiotherapy. The illustrations are numerous and well selected. The book strikes us as being thoroughly practical.

Manual of Auscultation and Percussion, embracing the Physical Diagnosis of Diseases of the Lungs and Heart, and of Thoracic Aneurysm, and of other parts. By AUSTIN FLINT, M. D., LL. D., Late Professor of Medicine and of Clinical Medicine in the Bellevue Hospital Medical College, etc., New York. Revised by HAVEN EMERSON, A. M., M. D., Associate in Physiology and in Medicine, College of Physicians and Surgeons, Columbia University, New York. 12 mo. 361 pages. Illustrated. Cloth, \$2, net. Lea & Febiger, Philadelphia and New York. 1912.

Flint's Physical Diagnosis, although its eminent author is now dead, appears in its sixth edition, a revision and enlargement of the previous work having been carried out by Dr. Hazen Emerson. In many respects the volume is pre-eminent in its special field, being marked by its clearness and precision in description; but we have not been quite able to understand why the diagnosis of heart and lung troubles should have been limited so closely to percussion and auscultation, to the exclusion for the most part of other valuable methods. In the revision of the book, chapters have been added on examination of the abdominal viscera and of the nervous system, besides another chapter with mention of accessory methods and order of physical examination.

Immunity—Methods of Diagnosis and Therapy and Their Practical Application. By DR. JULIUS CITRON, Assistant at the University Clinic of Berlin, II Medical Division. Translated from the German and Edited by A. L. GARBAT, M. D., Assistant Pathologist, German Hospital. New York 8 vo. 209 pages. 27 illustrations. 2 colored plates and 8 charts. Philadelphia: P. Blakiston's Son and Company. 1912. Cloth, \$3 net.

This hand-book is a translation from the German of a most useful work on the various but

most essential methods used in the applications of "Immunity." It is intended to serve a purely practical purpose for the student and physician, so that those even slightly acquainted with laboratory work may learn the details of the various reactions and their significance. The methods presented have been selected with especial reference to employment in the clinic for diagnostic, therapeutic, or prophylactic use, and while the volume is purposely somewhat limited in its scope, it will no doubt be an appreciated addition on the bookshelf even of the specialist.

Treatise on Fractures and Dislocations. By LEWIS A. STIMSON, B.A., M.D., LL.D., Professor of Surgery, Cornell University Medical College, New York. New (7th) edition, thoroughly revised. 8 vo. 930 pages, with 459 engravings and 39 plates. Cloth, \$5.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1912.

Stimson on Fractures and Dislocations has long since become a standard authority, and it seems necessary only to say that in this latest edition the principal revisions have been made in connection with treatment, especially of old dislocations and of the operative treatment of recent fractures. Three new sections on fractures of small bones and one on fractures of the external tuberosity of the femur have been added. More than one hundred new illustrations have likewise been included. We know of no better nor more complete work on this important subject.

Elementary Bacteriological and Protozoology: the Microbiological Causes of the Infectious Diseases. By HERBERT FOX, M. D., Director of the William Pepper Laboratory of Clinical Medicine in the University of Pennsylvania. 12 mo. 237 pages, with 67 engravings and 5 colored plates. Cloth, \$1.75 net. Lea & Febiger, Philadelphia and New York, 1912.

The title gives a very fair idea of the character of this little book. While it is prepared chiefly for beginners, we have been struck with its comparative thoroughness for general practitioners who often wish to consult a work on this subject, without delving into its intricacies. For the purposes intended, the volume before us seems eminently satisfactory.

Editorial.

Every Practicing Physician in Virginia Must Register Before March 13, 1913, to Be a Legal Practitioner.

The Virginia Legislature at its last session passed a new medical law, entitled "*An Act to regulate the practice of Medicine and Surgery in the State of Virginia*," etc., approved March 13, 1912, Section 6 of which reads, in part, as follows:

"6. *Registration of certificates; verification certificates; duplicate certificates; reciprocity.*—Within one year after the passage of this act all licensed practitioners of medicine in this State shall, as above provided, register their certificates to practice medicine in the office of the clerk of the circuit or corporation court of the county or corporation in which they reside."

Further information, if desired, may be obtained from Dr. Herbert Old, Secretary-Treasurer of the Medical Examining Board of Virginia, Norfolk, Va.

A Good Law Which Should Be Adopted Everywhere.

Chattanooga, Tenn., is to be congratulated on an ordinance adopted last September, and given in *Public Health Reports* for January 10. The law, which became effective two weeks after its passage, made it unlawful for any person or persons within that city to sell, barter, give away, or have on hand for the purpose of sale, a fowl of any kind from which the entrails have not been withdrawn after the same has been killed and dressed and made ready for market. Anyone violating this law is subject to a fine of not less than \$5 nor more than \$50.

It has always been an enigma to us why there should ever have been any question as to the fitness from a sanitary standpoint of drawn and undrawn poultry, fish, game, etc., and a number of years ago—June, 1905, and March, 1906—we commented on the subject editorially. Quoting then from a paper in the *Maryland Medical Journal* by Dr. Healy, of North Dakota, it was stated as a well-recognized fact that "game *eviscerated immediately after being killed* can be kept (in his section) for several days without refrigeration; but if evisceration is delayed for even an hour or two, the meat soon

becomes tainted." An article by Dr. J. C. Hemmeter, of Baltimore, was also quoted from the same journal, in which he spoke of the dangers of undrawn fowls, etc., and referred to the necessity for laws by all State and local governing bodies to control this matter.

Shortly afterwards, the *Bulletin* of the Department of Health for Chicago, in urging the passage of a law on the subject, among other things, had this to say: "The body in which the viscera are permitted to remain undergoes decomposition much more rapidly than when such viscera have been removed. Decomposition is further hastened by leaving the blood in the animal."

"Cold storage and freezing may limit the rotting process, but do not stop it. When poultry or animals are taken from cold storage and thawed out for exhibition and sale, the decomposition continues with renewed energy, impregnating the flesh with poisons."

With fowls that have been in cold storage, we know not how long, it is almost impossible in the early stages for the average purchaser to know whether or not the meat may be tainted until after the fowl has been opened. It would be eminently more satisfactory, in purchasing fowls, to pay a little extra by the pound for a properly drawn fowl than to be compelled to receive the entrails, feet and head at a more reduced price without an idea of how much of what we are buying may be made use of. We believe in progress, but, to our minds, this is one of the cases where the old-fashioned way is the best after all, and we hope it will not be long before more of our cities adopt a similar ordinance.

Richmond's New Yet Old Medical School.

Thirteen members of the Board of Visitors of the Medical College of Virginia met in this city, January 16, and, by unanimous vote, approved the action of its special committee in its plan for the merging of the University College of Medicine with the Medical College of Virginia. The Board, after passing a number of resolutions relative to the merging of these two representative schools, tendered their resignations to the Governor, so that a new Board might be appointed. The officers of each school will nominate to the Governor nine names for the new board, the nineteenth name being voted on by both schools together. The new Board

will very shortly after their appointment announce names of members of the new faculty.

As stated in our last issue, both colleges will finish up the present term independently, and the consolidation will not be considered in effect until June 1, 1913. At this time, the University College of Medicine will convey to the consolidated school its plant, property and equipment, and the Charlotte Williams Hospital Association will likewise convey without restriction the Memorial Hospital to the new corporation, which will be known as the Medical College of Virginia.

Tri-State Medical Association of the Carolinas and Virginia.

An exceptionally fine program is being arranged for the fifteenth annual session of the Association, to be held at Norfolk, Va., February 19-20, 1913, under the presidency of Dr. A. E. Baker, of Charleston, S. C., and several distinguished guests are expected to attend. Authors intending to read papers, who have not already sent in their titles, should send them at once to the secretary, Dr. Rolfe E. Hughes, Laurens, S. C.

The usual Norfolk hospitality will be enjoyed, as several social functions are scheduled, among them an oyster roast at Cape Henry. The Monticello Hotel will be headquarters for the Association, the sessions being held in its Assembly Hall.

For further information address Dr. Southgate Leigh, Norfolk, Va., or the secretary, Dr. Rolfe E. Hughes, Laurens, S. C.

The Birdville Sanatorium,

Which was established in Petersburg, Va., a little more than a year ago, for the free accommodation and treatment of tuberculosis patients, by the Anti-Tuberculosis League of that city, has been closed, at least temporarily. This has not been done for financial reasons, but because of the lack of patients, as tuberculosis patients seem to have a dread of leaving their homes for treatment. At the time of closing there were only three patients, though there are accommodations for twenty, and the directors decided that they were not justified in keeping the institution open at such heavy expense for so few patients.

Professional Appointments in Danville, Va.

At a meeting of the Common Council and Board of Aldermen of Danville the middle of January, Drs. W. E. Jennings and I. C. Harrison were elected members of the city board of health and Dr. Julian M. Robinson was elected city physician for the ensuing year, to become effective July 1, next.

The Wake County (N. C.) Medical Society,

At its December meeting, elected Dr. H. A. Royster, president; Dr. W. C. Horton, secretary, and Dr. K. P. Battle, Jr., treasurer. All of the above named doctors are residents of Raleigh.

City Health Department, Richmond, Va.

The annual report for 1912 of the Richmond Health Department would seem to indicate that Chief Health Officer, Dr. E. C. Levy, and his able corps of assistants are unrelenting in their work to give Richmond a good bill of health. In spite of the increase in population, the 2,715 deaths for 1912 shows an actual decrease of three deaths over last year, there being a much larger percentage of deaths among the colored than among the white population. The phenomenally low death rate from typhoid fever of 23 deaths for 1912, was lowered by two deaths for 1912. In fact, there was a decrease in the mortality of all preventable diseases for 1912, with the exception of malarial fever.

Cerebrospinal Meningitis in Two Southern States.

On January 1 an outbreak of cerebrospinal meningitis was reported at Lepanto, Poinsett County, Ark., and another in Dyer County, Tenn., about the same time. Both were apparently under control by the 8th of the month, when it was reported that there had been 25 cases with 17 deaths in the former place, and 91 cases, or suspected cases, with 41 deaths in the latter.

The Virginia State Conference on Charities and Corrections

Will meet in Danville, January 26-28, Dr. Douglas S. Freeman, of Richmond, presiding. About forty or fifty delegates are expected, and on the first day of the Conference, which comes

on Sunday, special sermons will be preached in the various churches in that city by members of the Conference.

The Rockingham Memorial Hospital,

Located at Harrisonburg, Va., it is reported, is to be the principal beneficiary of an estate estimated at from \$10,000 to \$20,000, by the will of the late Reuben M. Grubb.

Epidemic of Measles in Richmond.

Since the first of January, over 500 cases of measles have been reported to the City Health Department. In an effort to check the spread of the epidemic, the City Health and School Departments have met and will work in unison, and it is hoped the disease will be checked at an early date.

The Virginia State Veterinary Medical Association

Met in Richmond, January 9 and 10, with an attendance of about forty members, Dr. J. G. Ferneyhough, of Burkeville, presiding. Newport News was selected for the next place of meeting, and Dr. R. R. Clark, of Hampton, was elected president and Dr. Geo. C. Faville, of Emporia, was re-elected secretary-treasurer.

Married.

Dr. James R. Shacklette, of Faber, Va., and Miss Madge E. Thomas, of Washington, D. C., on January 11, 1913.

Dr. E. H. Miller and Miss Anne Elizabeth Noell, both of Danville, Va., on January 16, 1913.

Dr. J. L. DeCormis,

Of Accomac, Va., has been appointed coroner for Accomac County.

Drs. Dunkley and Slicer.

Dr. J. H. Dunkley, formerly of Saltville, but more recently of Roanoke, Va., and Dr. W. S. Slicer, also of Roanoke, have recently formed a partnership, and will practice together in the latter city.

Dr. John G. Blount,

Of Washington, N. C., has been elected Superintendent of Health of Beaufort County, North Carolina.

The Cholera Situation in Japan.

Continues to improve. The total number of

cases reported from the beginning of the epidemic to December 7, 1912, was 2,647.

The United States Civil Service Commission, Washington, D. C.,

Announces an open competitive examination for men only, February 17, 1913, for chief of the department of medicine, Philippine General Hospital. From the register of eligibles resulting from the examination, certification will be made to fill a vacancy in this position in Manila; at a salary of \$4,000 a year, and vacancies as they may occur in positions requiring similar qualifications, unless it be found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion. Applicants must be between twenty-eight and forty years of age, and must have had thorough laboratory training, followed by good clinical experience in a general hospital, in addition to being graduates in medicine. Further information may be obtained from the above Commission.

American Playground Association,

Richmond, Va., has recently been selected for the next meeting of the above Association, which will be held April 28-30, 1913. About five or six hundred representative people from all over the country, who are interested in this work, are expected to attend.

Excellent Opportunity for Energetic Doctor to Locate in Virginia.

\$7,500 will purchase a beautiful country homestead, approximating 147 acres in a desirable district, 1 1-2 miles from railroad, offering a profitable practice. Houses, orchards, shade trees, telephone, free delivery, and excellent roads. Buildings and improvements alone cost more than the price asked. Address Thos. P. Spencer, 165 Broadway, New York, N. Y. (Adv.)

Obituary Record.

Mrs. R. S. Griffith.

The many friends of Dr. R. S. Griffith, of Basic City, Va., will regret to learn of the death of his wife, at their home, on January 3, 1913. Mrs. Griffith was before her marriage in December, 1886, Miss Anne Julia Webb, of Friendship, Md. Her husband and two sons survive her.

THE Virginia Medical Semi-Monthly.

(FORMERLY VIRGINIA MEDICAL MONTHLY.)

Vol. 17, No. 21.
Whole No. 405.

RICHMOND, VA., FEBRUARY 7, 1913.

10 Cents a Copy
\$2.00 a Year

Original Communications.

NEOPLASMS OF THE GASTRO-INTESTINAL TRACT CAUSING OBSTRUCTION.*

By ERNEST PENDLETON MAGRUDER, A. M., M. D.,
Washington, D. C.

Clinical Professor of Surgery, Georgetown University;
Associate Surgeon, Emergency Hospital.

Introductory.—Neoplasms may be classified under two heads: (1) Those of mesoblastic or connective tissue origin; (2) those of epiblastic and hypoblastic growth. Under the former we may cite fibromata, myxomata, lipomata, chondromata, osteomata, myomata, angiomas, neuromata, and sarcomata; under the latter, papillomata, adenomata, and carcinomata.

Virchow laid special stress upon the fact that connective tissue and its equivalents are the general source of development of new growths, which arise either from simple division or from endogenous changes set up in the interior of pre-existing cells.

One-fourth of all cancers in the female and two-thirds of all cancers in the male develop in the alimentary canal, and usually upon a chronic, non-cancerous irritation.

Other than carcinoma and sarcoma, tumors of the stomach, such as fibroma, lipoma, fibrolipoma, myoma, and lymph-adenoma, are more of pathological than surgical interest, since they are small and rarely give rise to obstruction.

Of all primary tumors of the stomach sarcoma constitutes about 7 per cent. The lympho-sarcoma and melanosarcoma are more common than the primary. It occurs at any age, but the period from the forty-fifth to the sixtieth year is the most common. Without operation the

average duration of life after the diagnosis of sarcoma is one year.

Gastric cancer follows in the site of ulcer in about 70 per cent. of the cases; average duration of life after diagnosis without operation is one year, minimum a few months, maximum three years.

Cancer of the stomach is said to produce 2 per cent. of all deaths. Virchow stated that cancer of the stomach constituted 35 per cent. of all carcinomata. The disease has no preference for sex. The decade between the fortieth and fiftieth year claims two-thirds of all cases. The disease spreads in four ways; along the lymph channels, in the course of the blood vessels, by continuity, and by peritoneal metastasis when the serosa is involved. Catarrhal change and later atrophy produce the functional disturbances of loss of hydrochloric acid, diminution of ferments, the presence of lactic acid, and motor insufficiency.

Below the stomach, the types of tumor found are adenoma, lipoma, fibroma, myoma, myxoma, angioma, teratoma, and the combination neoplasms, like myo-sarcoma, fibro-sarcoma, etc.

Adenomata arise from the glands of Lieberkühn and are of kindred structure. The multiple polypoid form may be scattered through the large intestine, particularly in the region of the ileocecal valve. They, with the lipoma, occasionally produce obstruction through invagination.

Myoma of the intestine is more frequent than lipoma. It develops from the muscular layer and may grow inward, projecting into the lumen, thus producing obstruction. Any myoma may change into a sarcoma.

Carcinoma below the stomach is much more common in the large than in the small intestine, but its favorite seat is the rectum. Prac-

*Read before the Medical Society of the District of Columbia, October 9, 1912.

tically one-half of all carcinomata of the intestinal tract below the stomach involve the rectum. The cases in the male outnumber those in the female three to one. Seen as early as the sixteenth year, it is more frequent between the thirtieth and the fiftieth years of life. Almost invariably it is primary and solitary. The most common site in the colon is just above the sigmoid flexure. The types of carcinoma and order in which they occur are: cylindrical, medullary, gelatinous, scirrhus. It is prone to grow circularly, producing stenosis and then obstruction, with hypertrophy and dilatation of the intestine above it. Early metastasis is exceptional. The gelatinous type seeks the serosa, the medullary invades the regional lymphatics, the scirrhus produces metastasis in the liver. A stenosis may be changed to complete obstruction by some small foreign body.

Intestinal carcinoma is of slow growth, far more so than carcinoma of the stomach. It is much less fatal than carcinoma of the rectum. It is a favorable field for the radical operation. Metastases are deferred.

Carcinoma of the intestine is about twenty times more frequent than sarcoma. The latter is most frequent between the thirtieth and fortieth year. It is more frequent in the female. The sub-mucosa is the usual seat of the sarcoma. As distinguished from carcinoma, it is much more likely to invade neighboring organs, especially the mesentery and omentum. It is prone to produce metastases in the liver, kidneys, spleen, and retro-peritoneal gland. It produces obstruction less often than does carcinoma.

While gastric cancers form more than two-thirds of all cancers of the gastro-intestinal tract, that of the small intestine, in the form of a primary carcinoma, is exceedingly rare. In addition to the more common finding, one sees occasionally the development in a pedunculated adenomata or papilloma.

Etiology.—Etiological factors are: specific irritants; points of least resistance; micro-organisms; ferments; atavistic tendencies; 70 per cent. of the cases of gastric cancer are developed upon previous ulcer.

Histogenesis.—Segregated epithelial cells lying at the base of the gastric ulcer and cut off by inflammatory products, aided by extra-organismal irritants, develop into carcinoma through proliferation of the cells and their infiltration into surrounding tissues. This is the

carcinoma, or late adult type of tissue, and the other is the sarcoma or congenital or early mesothelial type, the mixed tumors being for the most part—not by any means always—benign. The malignant types, sarcoma and carcinoma, are at the two extremes of tissue life. Adami holds that these neoplasms are the result of the development on either the post-natally or pre-natally displaced cells, whose tendency is to revert to their embryonic type. Given, then, a few epithelial cells detached from their normal relationship and hemmed in like prisoners of war by scar tissue, as at the base of an ulcer, their natural tendency, if unassisted, is to die, through a process of degeneration from pressure or diminished blood supply, unless aided by specific irritant, when they at once proliferate and infiltrate the surrounding tissues, whence arises cancer. This specific irritant is probably a micro-organism, which will shortly be isolated, just as was that of the tubercle after years of research.

Symptoms.—Earlier, constipation may alternate with diarrhœa; the severity of attacks increases, accompanied with abdominal distention—always suspicious. As obstruction comes on, vomiting ensues. If absolute, the vomitus is fecal. Carcinoma of the cecum or transverse colon or sigmoid may be quite movable. The tumor is not sensitive. In itself carcinoma is not painful. Blood and pus may be found in the stools, and accompanying pain may be due to stenosis, adhesions, inflammation or ulceration. Tenesmus is common in carcinoma of the rectum or lower colon; quite absent if the tumor is situated above the descending colon.

In neoplasms of the cecum and colon, proximal to the splenic flexure, emaciation and anæmia are common; those of the descending colon and sigmoid are characterized by much less nutritional change, but more by mechanical effect. Emesis of increasing frequency and later locked bowel are common.

In sarcoma, after a palpable tumor, at first freely movable, emaciation and cachexia develop more rapidly than in carcinoma, for the reason that the tumor grows much faster. Ascites and metastasis are common.

There may be jaundice or obstruction to the portal system through a palpable metastasis in the liver, or a metastasis in the peritoneum, or abdominal lymph glands. A rectal and vaginal examination should never be omitted.

Other symptoms are: coated tongue, poor appetite, eructations of gas, heart-burn. Pain may or may not be present. In gastric cancer it is usually less than in gastric ulcer. There is lactic acid fermentation. A few red blood corpuscles are almost invariably to be seen in the vomitus. A palpable tumor is the most significant symptom of carcinoma. It should be remembered that all these symptoms may exist without carcinoma, and that carcinoma may exist without any of these symptoms. Palpable gastric cancer is usually smooth. If nodular, it signifies inflammation of the lymph glands of the lesser curvature and gastro-colic ligament.

Diagnosis.—It is profoundly to be regretted that initial gastric cancer produces no symptom capable of early recognition before secondary changes have occurred. A mass large enough to be palpable or to produce obstruction is very suggestive.

Many cancers of the rectum have been diagnosed as hemorrhoids. Perhaps 15 per cent. have been operated upon under this mistaken diagnosis. In the consultation no one should fail to make a digital examination of the rectum, followed by the proctoscope or sigmoidoscope. Failure in this routine may reflect disastrously upon the reputation of the trusted physician.

Crile recommends the blood test, based on the hemolytic property of cancer blood. A microscopic examination of the tissue is the only positive differential from the other forms of tumor.

Sarcoma of the stomach usually grows from the submucous, subserous, or muscular layer. It grows more slowly here than carcinoma, and is less prone to ulceration.

In the absence of stenosis, carcinoma of the stomach suggests the lesser curvature, rarely the fundus. Atrophy of the gastric muscles may produce obstruction no less than narrowing of the orifice. Free hydrochloric acid is replaced by lactic acid. Palpation of the tumor usually depends less upon its size than upon its position, whether in the anterior or posterior wall, greater or less curvature, or fundus.

Involvement of the cardia strongly simulates carcinoma of the œsophagus as soon as the orifice is encroached upon. Usually this is late. Pain upon pressure at the ensiform cartilage and retardation of the second gurgle (more than twelve seconds) are suggestive; chemical examination of the stomach contents is of great im-

portance; an old ulcer may give rise to a recurrent carcinoma.

The triad of symptoms are tumor, stenosis, and ulceration or blocking. In a rapidly increasing cachexia the lesion is probably located in the hepatic, splenic, or sigmoid flexure. In sarcoma, Murphy says there may be a pyrexia without infection.

The differential in carcinoma lies among sarcoma, benign tumors, appendiceal tumors, tuberculosis, actino-mycosis of the ileocecal valve, chronic intussusception, disease of the mesentery, encapsulated exudates and fecal masses.

If the tumor is near the duodenum, we must consider tumors of the pancreas, other retroperitoneal tumors, diseases of the biliary tract, etc.

Prognosis.—The role of the lymphatics in the prognosis of cancer of the gastro-intestinal tract is important. Cure is in inverse proportion to the number of lymphatics supplying the organ involved. Gastric cancer is most fatal because the stomach is richest in lymphatics. Following radical operation the rectum with fewer lymphatics gives much better results than the stomach, while the large intestine, with the least supply, gives the best results. "Tis a consummation devoutly to be wished" that discovery should be made of the pre-cancer state, or at least while the condition is still local, and the status one of undoubted curability.

The chronic irritation, the chronic inflammation are the forerunners of carcinoma.

Primary sarcoma of the lymphatics is fatal.

In general terms the virulence of carcinoma is inversely proportional to the age and physical strength of the patient. This virulence, therefore, decreases as the age of the patient increases.

Metastasis is in direct proportion to glandular environment, and the greater the glandular involvement the graver the prognosis. The greater the activity and irritation of the part in consequence thereof the greater the spread of the disease. The deeper the site of the lesion the higher the risk of the patient. On this account cancer of the skin is much more favorable than that of the viscera. Few cancers are incurable *if diagnosed and removed early enough*, and hence prognosis is in direct proportion to the earliness of diagnosis.

The patient may die of acute or chronic obstruction, or, escaping these, of cachexia, ex-

haustion, metastases, perforation into the peritoneal cavity, or of peritonitis. In general and excepting the rectum, the lower down the lesion the better the prognosis.

Nothnagel says that carcinoma of the colon without operation kills in periods varying from six months to two years.

Citation.—The usual history in these cases is as follows:

"Working man, aged 57, long subject to constipation. The day preceding his illness the bowel moved satisfactorily; that night he ate a hearty meal, consisting of bacon, cabbage, and potatoes; the next day he felt slight abdominal pain, growing worse as night approached, when he vomited many times. The vomitus contained some of the food of the day before. At 3 A. M. the following morning the family physician was called; temperature 98 degrees; pulse 60; respiration 16; the abdomen was soft, not tender, rectal examination, negative. To control the pain a half-grain of morphine, hypodermically, was required; patient so nauseated he refused even crushed ice; neither flatus nor fecal matter passed the bowel. Next day the vomiting became stercoraceous, persisting the third day; temperature 98.4 degrees; pulse 66; frequent large enemata gave no relief. The belly was now distended and hard; a well-defined mass was palpable on the right side, just external to the right rectus and three inches below the costal margin. The patient had probably been given morphine earlier, which accounted for his slow pulse and respiration. His temperature would not suggest peritonitis. A sub-normal temperature is often an index of the degree of prostration from any exhausting or wasting disease. The heavy meal may have had no direct bearing upon the actual condition found. Vomiting is always worthy of careful consideration. Stercoraceous vomiting always suggests intestinal obstruction, or general peritonitis. The absence of pyrexia pointed rather to obstruction. The poor return from the enemata would point to the site of the lesion as being above the sigmoid flexure. Diagnosis: intestinal obstruction. At this age cancer is by far the commonest cause. An acute onset without strikingly defined previous symptoms should never throw us off guard, for a cancerous stricture may suddenly block the bowel after slowly creeping for months towards complete obstruction. The mass is likely a fecal collection

dammed by a cancerous stricture at the hepatic flexure of the colon. Operation confirms this diagnosis."

Treatment.—Cancer causing obstruction is a purely surgical condition. Radical operation is to be performed whenever possible.

Kocher considers the most important point in the treatment of obstruction is drainage of the bowel above the lesion.

Upon the small intestine the operation may be completed in one sitting; upon the large, it is best handled in the double seance.

Whether the radical operation is possible will depend upon the extent of the tumor, its adhesions and the possibility of removing all infected glands. A simple colostomy under a local anæsthetic may be followed by the radical operation in three to four weeks, when both patient and intestine are in better condition.

It is certain that cancer of the intestine can be permanently cured. Some cases are reported as without recurrence and well after ten years.

In neoplasms of the colon ample resection and lateral ileo-colostomy is the best operation. In early cases careful and accurate removal of the glands with a view to cure should be the aim, and the end justifies the most radical operation. If the small intestine or bladder or uterus is adherent to the tumor mass, a multiple resection is by all means advisable.

For cancer of the rectum perhaps the best treatment is the double seance: the primary operation consisting of a permanent colostomy at the middle of the left rectus and resection of the entire rectum from behind at the second operation. In recto-sigmoidal involvement the abdominal is an excellent approach, or the combined method may be used. The abdominal route enables one thoroughly to explore the abdomen and to determine the presence of secondary carcinomata of the liver, stomach, peritoneum, or inoperable glandular encroachment. It permits, too, of a permanent colostomy at the same time.

The peroneal route naturally adapts itself to growths of the anal region. The free use of the thermocautery is strongly recommended.

Cancer has been produced experimentally by rubbing cancer tissue from one animal upon the abraded surface of another quite free from the disease. The utmost care and thoroughness of removal should always be emphasized in the technique of the radical operation. Sowing of

the field with cancer cells, or cancer cell implantation and regeneration at the site of a careless removal, is condemnatory surgery.

Beyond doubt the greatest error in treatment up to the present time has been the absence of any treatment at all—that early period of masterly inactivity which is little short of criminal negligence. Next to the crime of negligence is that of conservative surgery when nature cries for *the most radical of all surgical procedures*. Ample inclusiveness of the incision, exploration and resection, with lymphatic block excision of the entire gland-bearing mass, with intact capsules, is the greatest need of the hour. Preliminary cauterization and X-ray exposure before and after excision are also of first value. Careful, open-drop method of ether, nitrous oxide-oxygen anæsthesia, a preliminary direct transfusion or intravenous saline, in the presence of great emaciation or prostration, and a double seance with the view to the prevention of shock, greatly improve the prognosis.

In sarcoma Coley's serum is well worth a trial. In the post-operative treatment he recommends the mixed toxins.

A disseminated, small, round-cell sarcoma and a melanoma offer the gravest prognosis. An activated site of lesion hastens its fatality. Early diagnosis is the only key to certain success. Beyond a given stage, cure is not only improbable, but impossible, and operation worse than useless. The very best treatment is the earliest possible operation. The biologic instinct of the cancer cell is endless division. Its progress is death. At one stage it is local, curable; at another systemic, beyond human recall. Let us at once recognize that a latent tumor may be a potential cancer. Careful technique is of the utmost importance. The scalpel should not come in contact with cancerous tissue, and if it does it should be immediately exchanged for a clean knife. We should use the utmost gentleness in the handling of the tissues, and the handling should be done with instruments just as far as possible.

Most cancers are fatal. Why? Because the family physician, uncertain of the diagnosis, yet with the best intentions in the world, delays reference to the surgeon until the patient's chances for success have passed, until the terminal symptoms of wide lymphatic involvement, great emaciation and cachexia, have marked his doom. Success is possible only in radical re-

moval of the new growth. Extensive involvement of the regional lymph glands, metastases in the liver or other organs, and ascites, are counter-indications for operation. The patient's strength is another factor. Cachexia is an unfavorable sign.

The entire stomach has been removed in a number of cases with success, though in the absence of infiltration resection is preferable to extirpation, because the risk is less and because a small portion of the stomach may expand into a useful reservoir. If the tumor is adherent to the colon, that portion of the latter should be removed. Likewise in the case of the pancreas or spleen or other organ.

A gastro-enterostomy is advisable as a palliative measure when resection is impracticable. It may restore the motor function and prevent vomiting and inanition.

A few years ago the mortality following the radical operation was over 50 per cent. To-day, in the clinics of the higher standing—like those of the Mayos—it has been reduced to 25 per cent. Some are permanently cured, while in others life and relatively good health are prolonged from one to four years. In such cases internal treatment is an absolute failure. Surgical treatment is everywhere recognized as justifiable. That further experience and more improved technique will lead to better results no one can question. As it is, the patient usually gains rapidly in weight, there is complete restoration of motor action, causing the disappearance of the lactic acid fermentation, and in some cases the free hydrochloric acid return.

Recovery from gastro-enterostomy is followed by fewer years than recovery from resection, and the latter is vastly superior in its promise of cure.

From a mound of earth at Larissa, in Thessaly, comes the message to you and to me: "What cannot be cured by medicine must be cured by the knife; what cannot be cured by the knife must be cured by fire."

Summary.—I should like to emphasize with all the stress at my command the following points:

A chronic irritation is Nature's call for help. Our profession is her hereditary guardian, and it ill becomes us to blind our eyes and close our ears to her appeal.

To temporize with a probable malignant

growth until it produces obstruction is a crime to humanity.

The disease is distinctly surgical.

The procrastinating internist and the conservative operator where both delay and conservatism can possibly be avoided are alike criminally negligent.

The cancerous neoplasm in the strict sense of the term is curable.

In the "forward march" of events prognosis "keeps step" with diagnosis. The advance into the country of the enemy must strike a prompt and decisive blow or retreat is cut off and destruction is absolutely inevitable.

In the treatment of cancer the radical operation is the only operation worth while, and to the cautery no less than to the knife we must bow acknowledgment of our obligations in the hour of victory.

In resection we should direct one eye upon the tumor mass, and both eyes upon the lymphatic gateways.

Rigid technique is not asked for: *it is unequivocally demanded.*

In the consultation, when talent and skill join arms in an otherwise equal contest, the best surgeon is he who exercises the best judgment. To know what *not to leave undone* weighs more upon the scales of success than to know what to do.

Cancer is the worst enemy of the human race. It never raises the white flag; never asks for quarter. The condition permits of no alternative; *we must meet it no less with fire than with the sword.*

Hippocrates died about four hundred years before Christ was born. Yet the annual sacrifice in the United States to this demoniacal disease is 40,000 lives. You and I are living in the forefront of all the ages, standing on the threshold of the twentieth century. What a glorious opportunity!

The Farragut, Seventeenth and I Streets.

Measles Epidemic.

Richmond is not alone in having a measles epidemic, but it has been more fortunate in maintaining a lower mortality rate than that which has befallen some other cities. In Richmond, out of about 2,000 cases there have only been 7 deaths, while in Pittsburg, Pa., out of a few more than 3,500 cases there have been 55 deaths.

NITROUS OXIDE-OXYGEN—REPLY TO CRITICS.*

By SOUTHGATE LEIGH, M. D., and JAMES H. CULPEPPER, M. D., Norfolk, Va.

Sarah Leigh Hospital.

At the last meeting of this Society we presented a report of seven hundred (700) cases of nitrous oxide-oxygen anæsthesia from our clinic at the Sarah Leigh Hospital. Since that time there have appeared in the journals a number of more or less caustic criticisms of this form of anæsthesia, and from the profession in general have emanated various and sundry adverse opinions based largely upon misapprehension and lack of practical information.

Referring especially to our own method, which in some particulars differs from the method in use in other clinics, we would state that our work has been witnessed by a large number of visiting medical men who, without exception, have expressed themselves most favorably. The only criticism which we have heard from them has been as to the extensive training necessary to produce a skilled anæsthetist.

No description of this method of anæsthesia can possibly give one a correct idea of the subject. Personal observation is absolutely essential.

Without having witnessed its proper administration, members of the profession are basing their opinions on the few adverse reports appearing in the journals, and upon their knowledge of nitrous oxide as formerly administered by dentists.

A few surgeons have attempted to operate under nitrous oxide-oxygen, relying upon anæsthetists who have had no previous training or experience with this form of anæsthetic, using complicated apparatuses, and as a result have had most unpleasant experiences, and have in this way been led to condemn the anæsthetic when the administration only was at fault.

We recently had as a visitor at our clinic an anæsthetist who witnessed the administration of nitrous oxide-oxygen in a number of cases. In each case the entire anæsthesia was so smooth, and appeared so simple, that he not only expressed himself enthusiastically in favor of the method, but stated that he felt sure that he would have no difficulty in giving it him-

*Read by title before the forty-third annual meeting of the Medical Society of Virginia, at Norfolk, October 22-25, 1913.

self in major as well as minor cases. This is a good illustration of one of the sources of adverse criticism. If this well-meaning physician begins his work with abdominal cases, he will early come to grief, and will disgust himself with the anæsthetic.

The manufacturers of gas-oxygen outfits are causing much of the trouble along this line. They are advertising largely in the journals, and selling many of their complicated machines, some of which are as difficult to manage as a steam engine.

Ether, as an anæsthetic, appears so easy to administer that medical men do not hesitate to employ it, often without the slightest preliminary practical training. And yet, at the Mayo Clinic, where probably the safest and best etherizing in the world is done, the anæsthetists are not only well selected, but are required to have twelve (12) months of the most constant and exacting training.

There is no doubt but what great carelessness still exists the world over in the administration of anæsthetics, notwithstanding the great improvements which have taken place in the last few years.

No anæsthetic is safe in the hands of untrained, unskillful or careless manipulators, and except in emergency such a condition should be prohibited.

The main difference in this respect between nitrous oxide-oxygen and ether or chloroform is that the former cannot be given without skill and training, whereas the latter can be administered, after a fashion, by the inexperienced, but at the expense of the patient's comfort and safety.

In looking over the adverse reports in the journals one is immediately struck by the fact that the writers state in a vague way that they have heard of several fatal cases. As a matter of fact, there have been but a very few anæsthetic fatalities recorded. Of these about half were patients whose condition was so desperate that it would seem that no general anæsthetic should have been given. Nitrous oxide-oxygen was probably employed because it was known to have practically no depressing effect. In the remainder of the cases it would appear, from reading the reports, that either faulty apparatuses were used or else the anæsthetists had no practical training. In each case the statement was made that cyanosis was marked. This

should not have been permitted. We look upon cyanosis as a sign of danger, *and never permit it, even in a slight degree.* Our anæsthetist has the most positive instructions that in the event the patient cannot be kept quiet without cyanosis, he shall immediately discontinue the anæsthetic, and if necessary change to ether. As a matter of fact, during the past twelve (12) months, we have had to make the change only twice.

Although with nitrous oxide-oxygen we have found no depressing effects upon either pulse or respiration, yet we still continue to impress what we have always contended for with any form of an anæsthetic, and that is, that the anæsthetist shall keep close watch on both during the entire anæsthesia.

In our work we have not only had no fatality, but we have noted no depressing effects of any kind.

From our experience with about fourteen hundred (1,400) cases, it seems inconceivable to us that the patient can be placed in any danger if the anæsthetist is well trained and watchful. And even if the anæsthetist has had but little experience, the anæsthetic should be perfectly safe if we would strictly avoid cyanosis, keep the color pink, and stop the nitrous oxide if he is at any time in doubt as to the patient's condition. This intermission of the anæsthesia causes the operator but little trouble, as the patient can be put under again in from one to three minutes. If vomiting occurs in our work, the mask is removed, face wiped, and then the anæsthetic started again. The delay causes us but little inconvenience.

Some critics insist that ether, morphia and scopolamin, and novocaine infiltration produce the greater part of the anæsthesia. This is incorrect. Nitrous oxide is the anæsthetizing agent. We give usually morphia sulphate, grain 1/6, and atropine sulphate, grain 1/100, one-half hour before the operation. In more than half of our cases we use no ether whatever. In laparotomies we usually add from a few drops to two (2) drams of ether to assist in relaxation. We nearly always infiltrate the tissues with novocaine (Crile), for the purpose of preventing shock and lessening the pain from the sutures after the operation and relaxing the muscles overlying the peritoneum. Where the novocaine is omitted, we notice no special difference in the anæsthesia.

The fairest objectors to this method base their

criticisms on the difficulty they have had in getting complete quiet and relaxation. It is here especially that the skill and experience of the anæsthetist shows itself. We are willing to admit that relaxation is the most difficult part of the whole method; and it is but natural when we consider what "a sensitive equilibrium" we have to deal with. On the one hand, the patient is "put under" in from one to four minutes, and on the other, if the anæsthetic is discontinued, the patient begins to react immediately. And even with a skillful and experienced anæsthetist, we cannot expect to have quite so profound and continuous relaxation as with ether. At times the surgeon is put to a little more trouble in exposing the field of operation in abdominal surgery. But the many and vital advantages so tremendously outweigh this one slight disadvantage that it is hardly to be considered.

Our advice to beginners is as follows:

First.—Obtain a simple uncomplicated apparatus.

Second.—Witness the work of a skilled anæsthetist and learn from him the details of the method.

Third.—Begin with short cases first, and gradually feel your way with larger ones.

Fourth.—Do not attempt abdominal cases until thoroughly and practically trained.

Fifth.—Watch color, respiration and pulse constantly.

Sixth.—Give your entire attention to the patient, permitting nothing to divert your mind even for a moment.

Seventh.—In case of the slightest doubt, stop the anæsthetic and remove the mask *at once*.

Our additional experience has only confirmed more and more strongly the opinions expressed in our former report before this Society. We are using the method in a large proportion of our cases. One of us has been administering nitrous oxide in one way or another four years, and we have an anæsthetist who has been in training and using nitrous oxide-oxygen for fifteen (15) months. We cannot speak too highly of the method. It is almost ideal.

We do not recommend it for general use by the profession, but believe that it should be employed in every well-equipped hospital.

Our own method differs somewhat from the methods of the other clinics. The apparatus is simple, uncomplicated and inexpensive. By a perfect method of rebreathing, much less of the

gas is used, and the cost is thus greatly reduced. Our mixing chamber is essentially different, and we use only one bag.

Finally, we insist upon the patient maintaining a pink color from beginning to end of the anæsthesia, whereas, in some clinics cyanosis is permitted.

The object of this brief paper being for the purpose of replying to certain criticisms, it would not be proper to enter into a full discussion of the subject. However, for the benefit of those who have not read our former report, it might be well to enumerate the advantages which we claim for this comparatively new method of anæsthesia.

ADVANTAGES TO THE PATIENT.

First.—*Pleasant to taste and smell.* There is not the slightest unpleasantness in this regard, and there is no feeling of smothering or suffocation and no irritation of the air passages.

Second.—*Rapid loss of consciousness.* In from one to four minutes the patient is asleep. As soon as the mask is applied we usually begin the final preparation of the skin, and when that is completed, and the towels arranged the operation is started without delay.

Third.—*Pleasant sleep.* The report from patients usually is that, if they dream at all, their dreams are pleasant ones.

Fourth.—*Quick recovery.* In from two to four minutes after the mask is removed the patient can intelligently answer questions. Some drowsiness, of course, continues as a result of the morphia and atropia.

Fifth.—*A minimum amount of nausea.* If the stomach is well prepared, the nausea amounts to nothing more than a little gagging. Frequently there is none at all.

Sixth.—No prejudice against the anæsthetic and no bad impression from taking it. In questioning our patients it is rare to find one who has any complaint to make against the anæsthetic. Indeed, they usually recommend it highly, and state that they would not mind taking it again if necessary.

ADVANTAGES TO THE SURGEON.

First.—*Feeling of security.* From experience with our own cases as well as from the reports of observers, we are led to believe that this form of anæsthesia is safe, and that it has no depressing effects during administration and no bad effects afterwards.

If we are correct in our assumption, is not

this a boon to the present day surgeon? For ourselves, we can say that it has taken a heavy load off of our minds. The conscientious surgeon cannot help being deeply affected by his anxiety in regard to the anæsthetic, especially when chloroform or ether is used. This feeling of care and responsibility is certainly reduced to a minimum, at least by the method of nitrous oxide-oxygen.

Nor do we find or believe that the shock from the operative manipulation is increased, but rather lessened.

The rapidity with which the anæsthesia is induced, and the promptness of recovery from it, both appeal strongly to the surgeon.

With this form of anæsthesia we can more safely operate on the very young, the very old and those greatly debilitated from disease. Even in bad cases of diffuse peritonitis we have noted no depressing effects.

Second.—*The absence or minimizing of the nausea* aids greatly in the after handling, and prevents many sources of danger.

Third.—*Relaxation* is as good as with ether or chloroform. This statement we have already qualified in the early part of this paper.

Fourth.—*The absence of ante- and post-operative delirium* is a great aid in the successful management of a hospital. Nothing hurts surgical work more than the bad impression made on other patients and the public by the disturbance caused by patients recovering from ether or chloroform.

ADVANTAGES TO THE ANAESTHETIST.

First.—*Little or no fear on the part of the patient*, resulting in a much quieter beginning to the anæsthesia, with very rarely any struggling or outcry.

Second.—*No mucus in air passages.* A great advantage over other anæsthetics.

Third.—*Pink color throughout* if properly administered.

Fourth.—*No depressing effects on pulse or respiration.*

Fifth.—*No disagreeable odor* about the patient or apparatus.

Sixth.—*Pleasant frame of mind* on part of patient after regaining consciousness, with rarely an exception.

From our experience with nitrous oxide-oxygen, and especially by the method which we employ, we believe it to be an ideal general anæsthetic.

SOCIOLOGIC ASPECT OF DRUNKENNESS; DUTY OF THE STATES.*

By STEPHEN HARNSBERGER, M. D., Catlett, Va.

But why this paper? some may say. An old story? Perhaps it is, and that is why I repeat it. We need the old stories. The best old story, the story the Bible tells us, needs repeating. Then, why not this? The old story the Bible tells us saves the souls of men. This old story may save men—and their souls too. And this is my apology for repeating it.

Drunkenness a Disease.—No question is more vital to man than the preservation of man, and no question fits the moment more fitly. This old story needs repeating, because some physicians and most people still cling to superstitions irrelevant to both the genesis and the nature of drunkenness. It is a widespread notion that drunkenness is a thing of volition. It seems little understood that there is a cause deeper down than the mere existence of an intoxicant and its response to sensitized desire. We have intoxicants, therefore we have drunkenness, is the concept. In considering its logical nature—making drunkenness a crime, we overlook its metaphysical nature—making it a disease.

Out of Balance.—Normality may be fitly defined as mental and physical adjustment. There may be grades higher and lower, just as a normal lung in one person differs from a normal lung in another. Let this be as it may, the consequence is inevitably the same—equipoise of thought and action. Normality needs no stimulus. Inherent forces, coincident in action like the "equitant leaves of the iris," determine control, which is perfect. Aberrant thought or action shows in conduct and expresses want of balance. And it is to this lack of mutual counteraction of forces that we must look for the essential cause which impels to drink and drugs. If this be true, and it is, then the drunkard is not a drunkard because of what he does but by reason of what he is. Fix this fact in mind—it is the pivot on which resistance turns. The normal person does not need liquor; certainly he should not want it. When a man drinks, irrespective of social position or property, it shows that he is just that far removed from the normal.

Drink a False Complement.—Psychologists¹ tell us, and reason dictates the same, that a feel-

*Address made in Public Library, Washington, D. C., April 4, 1912, by invitation of the Medical Society of the District of Columbia.

ing of inadequacy is the predominant cause of the desire for drink. Not always, however, for some presume upon their parts and drink because it "shows the man" to take it or not as one likes—and it does, forsooth, "but as it were in sort and limitation." Some boys drink through the inadvertence of youth; and not a few because they think it manly. Still another class drink because it is a social custom or just because they are thrown with it, and not to satisfy the desire to buoy weakness, all the while disregarding the promptings of reason that they are offending. But where drinking is due to a sense of inadequacy, it strongly tends to a fixed and an uncompromising habit. This, then, if true, would point to a logical remedy and that remedy is in the homes and in the school; or to put it differently, *rests in the environment*. The determining cause is mostly in the giving and withholding of the home and mother and later of the school and educator. The conduct moulding influence of home and mother and school and educator alone can determine the dateless limit of the inadequacy that urges to find satisfaction in the cup. In whatever way you view it, it is a vital social question. It is born of society, affects society and must be remedied by society—if it is remedied at all. The mirage of the lure of drink does not balance the unbalance of inadequacy—but it does ordain man's doom.

Not the Shadow but the Penumbra of the Shadow of Drunkenness.—We are told that drunkenness is the active cause of 75 per cent. of all pauperism; 67 per cent. of all crime; 55 per cent. of all idiocy, and 34 per cent. of all insanity. This statement alone is enough to command alarm, but it by no means tells all; nor can I tell all—time limit forbids—but I can tell more.

While strong proof points to hereditary predisposition as the most important factor in the production of insanity, imbecility, and epilepsy, alcohol is a powerful coefficient in the production of insanity. Alcohol also plays no small part in the production of imbecility and epilepsy, and is by great odds the main source of crime and pauperism. But whether it is insanity, inebriety, or other expression of mental and physical delinquency, each and all unite in hastening the incidence of each and the other. Mothers transmit insanity and epilepsy with much more frequency than do fathers, and the

transmission is especially to the daughters. Retrogression in this respect is sure to continue, as present social conditions are essentially reinforcing and providing fresh tainted stock.

Drunkenness is not simply drunkenness. It is farther reaching and includes insanity, epilepsy, imbecility, idiocy, pauperism, and crime. One and all are, as it were, working both separately and conjointly, and together are sapping body and mind and making hopeless and dangerous dependents where we should have strong and helpful producers. Although evidence of the rapid retrogression we are making has been supplied from many sources, we must admit that there are thousands of drunkards and otherwise defectives which never have become public or dealt with by the authorities, and which is probably even a more fertile source of misery, poverty and degeneration than that which comes before the police and other courts. However this may be, the evidence we have taken has confirmed in every respect the views of all who study present day social conditions, as to the number of defectives, as to rate of progression, as to the distress they produce, as to the economic loss they entail, and as to the urgent need of legislation to deal with them.

Perhaps no longer than fifty years ago defectives were comparatively rare. But how is it to-day? Why, in Virginia we can not build asylums fast enough for the increase of our insane, epileptics and feeble-minded. Dr. Drewry, in his recent report, says "that in a single generation the number of insane persons sent to hospitals had increased about 500 per cent." In other Southern States this increase has perhaps not been so rapid; but let it be what it may, the picture is dark enough to throw its shadow and make visible to the most careless mind the slipping away of the essential element of efficiency of population.

We Americans push the speed of existence beyond safety and reason. It is true age average has increased, but this increase is due to a lower death rate in infancy, a better understanding of the cause and treatment of diseases in general, and a stricter enforcement of sanitary measures and preventive methods, and not to increase of strength, as it should be. For upon the whole we are growing weaker. Retrogression is multiplying the feeble-minded, the alcoholic and incompetent is growing, while the healthy and able are limiting their families.

And to bring this lapse from the normal more forcibly before us, let me mention just one more fact: We all know about the Puritans. They were uneducated, as the word implies to-day, perhaps bigoted and withal austere, but they were equally distinguished for many fine and tender traits and high heroic virtues. They had strength and courage; a real love of home and fervent trust in God. They were the sound stock that built New England and made it a center of wealth and culture. But New England of to-day is not New England of a few years ago. We find, according to recent reports presumably authoritative, that 65 per cent. of the children in the public schools of Boston are mentally or physically defective. In the absence of data to the contrary, it is not an unreasonable surmise to conclude that this mental and physical obliquity, in greater or less degree, has a hold on all of our other cities and States. But even if it is not so great, still it is serious enough to demand genuine concern and thoughtful consideration. Such a state of society is in effect unstable, and carries in its midst the seeds of its own decay.

But the penumbra is yet of imperfect vision. Another blotch is in the reckoning. The unwariness of conduct of drunkards and those otherwise delinquent seems to be taking root in higher ground, for we see declension of sense of obligation on every side. We see it among people generally. We see it in the acts of our Chief Executive and in those of scarcely less position, not only in great matters, which the masses rarely notice, but in many small acts which they do see and feel and remember; and it leaves a taint that tends to draw down in the scale of character. We see it in the plans and construction of public buildings, notably Union Station, which is mostly used by and should be planned for the comfort of all the people, constructed for the use and comfort of special classes. We see it in Boards of Charities, and what is worse than all, we see it in the churches. This should not be, but it will be, so long as education is as it is to-day.

Punitive Measures a Failure.—The standing committee on hospitals of New York² has tabulated the following vital defects in the present way of handling drunkards:

1. A short sentence accomplishes nothing either in reforming the individual or in protecting society.

2. A fine, if paid at all, is usually paid by relatives to save themselves and the person arrested from further disgrace. These, in most instances, can ill afford to pay it.

3. An ordinarily self-respecting citizen, who becomes intoxicated, loses not only his self-respect, but frequently his employment by being publicly exposed and brought before the court, and perhaps sentenced to prison, to associate with the most vicious type of criminal classes.

4. There is no differentiation in treatment of the occasional and the habitual drunkard.

5. There is no institution to which an inebriate can be committed for treatment and there is no provision for commitment.

6. The "rounder" in the hospitals, the police stations, the courts, the prisons and workshops is an inevitable consequence of short term commitments and petty fines.

7. Punitive rather than remedial measures are emphasized.

8. The courts are crowded with many cases that ought never to appear before them and cases that require careful attention are hurriedly disposed of. The cases that properly come before them should not come repeatedly.

9. A large percentage of the cost of the police force, of the magistrate courts, of the city prisons and workhouse, of the municipal hospitals and of the charitable organizations and institutions is due to the "rounder."

Compulsory Legislation.—Drunkards, in their own destinies, continue to wrong their rights and the people's rights. The anarchy of thought and chaos of mind of the drunkard renders him helpless in any effort to reform himself. He becomes a menace to society and a charge on the State. States and large cities should provide institutions where they can be cared for and treated. In the opinion of all who have studied this matter carefully, legislatures should not hesitate to enforce restrictions on the liberty of persons whose "unchecked vagaries are clearly contrary to the public weal." With regard to compulsory laws conflicting with personal liberty, it is to be remembered that the same dread was felt with respect to the detention of lunatics, a dread that experience has shown to be without foundation. We should have stringent compulsory powers over the habitual inebriate offender, and, when necessary, over the private or social inebriate. No intermediate course will meet the situation.

If we were as much against laws that perpetuate the people's wrongs as we are in favor of laws that conserve the people's rights, we would show a humanizing spirit that would stretch our dominion over the care and training of the weak and bad, and not let the one drift to ruin and the other to despair and both wax worse by sheer compulsion of smarting and unreforming punitive measures.

Recurrent insanity, owing to the fact that parents are not segregated for any length of time, is a potent cause of insane inheritance. High grade imbeciles, together with chronic drunkards, neuropaths, epileptics, etc., by reason of too lax marriage laws, are rapidly forging the links in the chain of degeneration. We also need legislation here. Certain mental and physical defects should enjoin marriage or allow marriage only after physical changes that inhibit progression of degeneration have been made absolute. States should exercise strict supervision over marriages in matters of this kind. They might also not do amiss to follow the old Greek plan that prohibited old men marrying young women. And if all the other States would adopt South Carolina's one-time perfect divorce law, there would be no Reno and the social atmosphere of this country would be less murky.

Legislatures should also require records of the birth, sex and name of every living child and have them kept in vaults secure from damage and loss by dust, damp and fire at each county seat and at each State capital. No marriage license should be issued unless the births, ages and names of the applicants for such license agreed with the births, ages and names on record in one or the other of the places where they are registered. This would eliminate thousands of undesirable marriages and greatly cut down divorces; and it would do good in many other ways.

Publicity.—Dean Swift, in one of his pamphlets³ blamed the public men of his time for too much cultivating the habit of mystery and having too many secrets. We have abundant occasion to-day to press this political moral of his in our professional life. Plain folk are left in too great uncertainty, not being able even to guess what we are about, while we ourselves, through keeping so many things in confidence or concealed or quiet about them, are apt to lose sight of what is really important to be made known to the public. I believe in pub-

licity. There are some things the people should know. These are things they should know. These are things that should be engraved on the heart of every citizen of our country. Legislatures should appropriate enough money to make these things known to all the people. Unless people know what is wrong they can not correct the wrong.

Conduct Parallels Environment.—While we can not change this potentially dangerous element into a social force, we must strive to evolve out of the present social disarrangement some degree of social safety. We must go back and still we must go forward. Obviously our social and educational ways are at fault. For fifty or more years we have been imperceptibly, yet uninterruptedly, drifting from the safe moorings of home, mother, and the personal factor in teaching. From individual child training we have jumped to aggregate class instruction. The educational system of to-day is forcing knowledge at the expense of wisdom; and social prejudice is robbing home of what the schools can not restore. This is no reflection on our educators. They are working on honest lines, but they are hewing to the line of knowledge to the hurt of wisdom, which alone refines conduct. And, after all, conduct, which is the essence of the higher life, should be the aim of all education. If we would have physical and mental strength we must have moral and spiritual soundness. Environment is by far the most powerful force that shapes the individual and the race.

It is time we were taking some steps to correct abuses that exist, and will continue to exist, so long as there is not a disposition to preserve and an ability to improve the good of the past. A step in the right direction would be a movement looking to the standardization of classes. Children should be arranged into classes according to some common relations, affinities, characteristics or talents—taking into consideration mental and physical standards, and teachers should be chosen with an eye to special fitness for the work assigned them. Present day school-rooms are too large and classes are too large. Classes should be small and the personality of each child should have uppermost thought and direction. The precocious and the doltish should be in separate classes, and the feeble-minded should be classed according to degrees of mental weakness; while all should be constantly kept un-

der influences, tactically used, that go to moulding conduct and fixation of sense of obligation. For it is this, other things being equal, which puts one man above another. The weak with high grade conduct is not bad—the strong with low grade conduct is like a “roaring lion, seeking whom he may devour.” The intermediary average is safe and that, at least, we should work to maintain.

Isotropic Education.—If we can not go back to home and mother, or get mothers to go back to the old home ways, then let us shift the class system, which is coercion and negligence to inertia, and install in its stead the individual system, which is development and activity under liberty. It is this which makes education elastic in all directions. The class system stifles personality, the individual system expands it. The one frames to immobility or intromission of conduct through the bondage of artificial classification, the other energizes to development and activity of conduct through the liberty of personal discipline. In other words, it is not a liberal education—the gaining of knowledge, but a liberating one—the acquirement of wisdom, that prepares the child for self-mastery in adult life; and this ability to cope with things is the only indemnity against desires and habits that make men's existence “dark and intricate of purpose, without any dependence or order”—the antithesis of ordained creation. “What is a man profited, if he shall gain the whole world, and lose his own soul?”

Fix the child to make his life, not to copy it. Then again, and which is fundamental, the precocious and doltish should be winnowed. Probably nine children in ten have neither desire, capacity nor ability to take an education. Capable teachers know these and they should be weeded out after from three to five years of primary work and put into some properly equipped manual training school, or be kept at home, and given such work as best suits their ages and bent. They can not be educated, in the sense we commonly use the word, but they can have their hands and hearts made to fill a useful purpose. Millions of dollars are wasted and thousands of children are ruined by trying to educate them. You can not force education into the unwilling heads of American children any more than this Government can shoot religion into the hearts of the Filipinos. It is misdirected charity and it is misshaping the better trend of youth's natu-

ral bent. It is simply hastening the retrogression we should endeavor to stop. Every child has some good promptings and more or less talent in one way or another, and these connate qualities elevated by first understanding them and then guiding them rationally, can be landed safely unto self-mastery, which is doing the something they were born to do. Life will be a stale thing to the child if you only work the surfaces of its nature and stifle its deeper throbs. Fix the child to make his life, not to copy it.

Work does not harm the child, it conserves him, notwithstanding all the “child labor” laws to the contrary. It is cruelty that harms, not work; and the greatest cruelty that can be put upon a child is put upon him by the cold storage substitute teaching in the public and some other schools. There is no warmth in it, and therefore, there is no life in it. The personality of the child is kept at zero point by the restraint and neglect of the large class-room. It starves the natural aspiration and initiative of the child. When you starve these, no matter how it is done, you pare down proficiency in childhood and depreciate efficiency in manhood. And you do worse, for as Shakespeare truthfully puts it:

“Refrain in me the cursed thoughts that nature
Gives way to in repose.”

The child needs work. Work helps to keep his head and heart and hands in action in the right direction—it gives moral tone and strengthens sense of obligation. I know that this is heresy, but it is the heresy that builds on the ruins of wreckage. Unquestionably it is largely from this nine-tenths, shaped into misfits in childhood, that are enlisted the great army of drunkards and other delinquents, who beget a stock of degenerates, who in turn taint their begetting.

Childhood the Seed Plat for Manhood.—The receptive and plastic age of the child is from infancy to puberty, a period of about fourteen years. If conduct is not moulded in this susceptible period it is not likely to be moulded at all. The mother should begin the moulding, the teacher should conclude it. Away with the so-called liberal education—there is more need of moral education. It is the education that reaches the heart of the child that goes deepest in making the ideal citizen. If the heart is educated, the head will take care of itself.

The teacher, if complete by nature and the rest, and "not unmixed with irrepressible concern of love," can enter into the spirit of the child's personality and the harmonies within her will enter and play on his soul "like the wind's whisper over a still lake." Such close affinity of relations seals its impress upon the child and by the very nature of things it becomes a part of his life to aspire and to resist desire. The neglect or lack of the knack of turning discord into harmonies is what alienates.

"Grace only in the day of grace has power
To purge the ill, and recreate the good."

Mother's Love the Nursery of Conduct.—The pious mother, "a pattern on earth of things in heaven," forgetful of self, no shade obscures her countenance as she bends forth in quickening in her child the gentle graces, but chiefly tells him of her love, until his heart unfolding to her prayers grasps by faith the "suasive melodies" that forecast the conflicts of the coming life. The good impulses then directed by the unity of her ministries echo forever in his heart and make vocal the heritage that forestalls the path of danger. Well might I exclaim, O mother,—you I invoke,

"For in your gentleness there lies a spell
Mightier than arms or bolted chains of iron."

Who knows not the love of mother knows not that in a pious mother's love is kindled the light that guides unfalteringly along the dark vales of human endeavor and makes the ebb and flow of life's conflicts impossible of harm.

"In the world's morning it was thus, and, since
The evening shadows fell athwart mankind,
Thus hath it always been.

And, may I add, thus should it be—now.

"Back to the farm" is the sad sentiment that now fills the hearts of many of the sorely tried in the congested centers of population, but back to the environment of the Christian home and wholesome early school training, with their suggestive influences for determining conduct, is the surest security against loss of character, health and happiness that lurks in the glass from over the bar.

BIBLIOGRAPHY.

(1) Tom A. Williams—*The Psychological Basis of Inebriety: Its Etiological and Social Features; Remedies.*

(2) Second Edition, No. 108, State Charities' Aid Association, of New York.

(3) From some exchange, but unable to find original or notes.

INFANT MORTALITY IN RELATION TO THE HEREDITARY EFFECTS OF MENTAL DEFICIENCY.*

By HENRY H. GODDARD, Ph. D., Vineland, N. J.

Director Research Department, The Vineland Training School for Feeble-Minded Children.

There are those who profess to have a contempt for philosophy, and yet the philosopher is the only benefactor of his race. One may not know the Aristotelian doctrine of Catharsis, nor Bishop Berkeley's theory on mind and matter, nevertheless one must be able to see the different facts of life in something of their true relationship in order to act wisely, and in a way that will really benefit humanity. And after all, philosophy is nothing more or less than the fitting together of all the different facts of all the sciences in order to make a consistent whole.

It is with great satisfaction that I see that this Society is taking up the problem of Infant Mortality from the philosophical standpoint, and that the object of this particular meeting is to consider infant mortality in relation to *hereditary* effect. There is always danger of being one-sided. Indeed, man's greatest difficulty in life in the present day seems to be to keep his balance, and apparently the higher we get in our civilization the more liable we are to get dizzy and fall over to the one side or the other. In this matter of infant mortality we are in danger of reasoning fallaciously, more through false premises than illogical procedure. We say death is an evil; therefore banish death. It is particularly distressing to see the poor innocents die; therefore, we must exert all our efforts to keep them alive. It is a curious paradox that the greatest philosopher that ever lived promulgated a philosophy and a religion, the very essence of which is the unimportance of this life and the great value of a spiritual life beyond; and yet we, his modern followers, have gone to the extreme of maintaining that the thing of utmost value is life. Cicero seems to have demonstrated that death is not an evil from any standpoint. It is quite possible, even, that the death of infants is sometimes a blessing rather than otherwise, not only to humanity itself, but to the infant.

To put the matter in another form, we, as human beings, seem to be swayed in our actions

*Read before the American Association for Study and Prevention of Infant Mortality at the annual meeting in Cleveland, October, 1912.

by two kinds of influences. We may call these our emotions and our reason. Speaking of individuals, we would call the one person an emotionalist and the other a rationalist, perhaps a "cold scientist." Of the two, one may not know which to prefer. But we are not compelled to choose either extreme. All history, both of nations and of individuals, shows that there is a golden mean; that our emotions should be tempered by reason and judgment, and that our reason should be somewhat modified by our feelings.

Mankind has been swayed by many kinds of feeling, but he has seldom guided his course, at least in groups, by very much reason. Man has recently come into possession of an exceedingly dangerous weapon. Having studied nature now for some years, and having developed considerable science, we are beginning to attempt to control nature. If we knew all, that would be wise; but with our partial knowledge, it is inevitable that in our attempt to control nature we shall make many serious blunders, possibly fatal ones. Nowhere is this more imminent than in the matter of life and death. In nature death is not an evil, but the great preserver of equilibrium. Until recently the same law of the survival of the fittest which applies to plants and the lower animals applied also to man, but of late the humanitarian side of us has become so strongly developed that we are interfering greatly with this natural order. I am not proposing that we should be less humane, or that we should revert to the old methods, but it is necessary to insist that along with our humanity there should go considerable philosophy; that our emotionalism should be tempered by reason and judgment.

As applied to our specific problem, the following seems to be the situation: We know now that a surprisingly large percentage of people are of such low mentality that they are incapable of living what we term a normal life. They have not judgment nor intelligence enough to do those things that make for happiness and prosperity. Moreover, it is in this group of people that the birth rate is highest. Furthermore, because these parents are ignorant of how to take care of their children, and because the children have inherited the parents' weaknesses, a large percentage die. It is the inexorable law of nature. They are not fit by endowment to survive, and, therefore, nature takes them away.

But now man, with his superior intelligence and his highly developed humanity, steps in and says that they must live. We will see to it that they do live. Another fact that we have learned is that these people of low intelligence transmit that low intelligence to their children, and that consequently a large percentage of these children, if they live and grow up, will be mentally deficient, will always be a burden on society, and more or less a burden to themselves. Therefore, when we step in and keep these people alive, we are simply laying up trouble for ourselves and trouble for these same children.

Again, I hasten to say that I am not arguing in this paper that we should not keep them alive. I do not believe that we can do differently and maintain our humanity, but the whole point is that at the same time that we do this we must do something else also. We must not think the problem solved or our task done when we have insisted that these children should be kept alive and grow up to be adults; but we must see to it that society does not suffer from the consequences of the mental defect of these people, because mentally defective many of them will be; and if not mentally defective, many will bear in their constitutions the physical weaknesses that they have inherited, and that again will be transmitted and contribute toward producing a weakened race. Certainly in the light of all that we are beginning to know of eugenics, we cannot tolerate for a moment the thought of thus consciously and definitely going against all that eugenics teaches us, and of aiding and abetting the establishment among us of a race of defectives, degenerates and weaklings. If our humanity will not allow us to let these children die as infants, our humanity certainly does not prevent us from insisting that they shall be the last of their race, and shall never become parents of more children like themselves.

We must not stop half way in our attempt to solve the problem.

A beggar stops me on the street and asks for alms. My whole heart goes out toward him, and I am inclined to hand him a coin. But my science comes to my aid, and I realize that by giving promiscuously in this way I am not helping him, I am really doing him an injury. I am tending to continue the condition of life in which he lives, to promote beggary and improvidence. I, therefore, refuse to give him the coin and go my way.

But if I stop there I am doing something that is equally wrong. I simply become the cold scientist instead of the humane fellow-being. My real duty is to go behind the conditions as I meet them, and discover what underlies; discover why that man was begging, and remove the cause of his begging.

The same thing applies to our problem of infant mortality. Could we shake loose our humanity, we should say let these children die. If they have not inherited enough vitality to live under ordinary conditions, this is only nature's way of ridding the world of weaklings. But since we cannot do that, we must go to the very bottom of the problem and seek for the cause.

That our contribution may be positive rather than negative, let us see what plan of action can be formulated. Two per cent. of all school children are feeble-minded, and it were better had they never been born. What per cent. of the children born, but who die in infancy, would have been feeble-minded had they lived we can only conjecture. It must be high. It is estimated that one-fourth of all the children born die before the age of two. It is clear, therefore, that as soon as we succeed in keeping alive a large percentage of these, we will surely increase our percentage of feeble-mindedness, and thereby add to our social problems of pauperism, prostitution and crime. A comprehensive plan of action would seem to be something like the following:

First, a careful study into the heredity of all of these children. This would enable us to divide them primarily into two groups—those with normal heredity and those with feeble-minded ancestors. The latter group will, according to present indications, be either feeble-minded or capable of transmitting feeble-mindedness to their offspring. All such cases should be carefully recorded and watched throughout their childhood and youth. Those that prove to be distinctly feeble-minded should be placed in colonies where they will be made happy and as useful as possible, but kept from procreation. Those that do not show feeble-mindedness in themselves, but where the probabilities are strong that they will transmit feeble-mindedness, should be, if they are intelligent and public-spirited enough, urged never to become parents.

If we shall ever come to the point where

sterilization is looked upon with favor and resorted to to help solve this problem to the fullest extent possible, it may be that such persons can be sterilized by the operation of vasectomy, and then allowed to marry and live their lives in happiness, with the certainty that there will be no issue to perpetuate the evil.

Those children who are found to be of normal ancestry are, of course, capable of growing into useful citizens, unless they have acquired a weak organism or a defective constitution in some way, so that they will always be more or less handicapped through life. Of this class there is probably no danger of procreation; that is to say, no danger that their offspring will be defective. They need a change of environment, and the conditions made such that they can make a living, and if they marry, transmit to their offspring every advantage which they themselves have.

A study of the heredity of these children will doubtless, in many case, suggest some possible action in connection with the parents.

The following case will illustrate what we have in mind: An insane man was in a hospital for the insane where there was every justification for keeping him for life, since he was recognized as incurable. But he had his mild spells, when it was safe to allow him to go home. It had been done (in order to save expense to the State and to make room for other needy cases) until he was the father of five children, all feeble-minded or deformed. The mother, the man's wife, was feeble-minded.

At this juncture the hospital authorities made the following proposition to the man: "You are begetting defective children, who are a burden to you and the State. This cannot longer go on. We can keep you here, where you will be cared for and will be safe, or, if you will submit to the operation of vasectomy, then you can be allowed to go home." It happened that during his quiet period he was able to earn quite fair wages. The man refused to submit to the operation of vasectomy, but after a time the wife was taken into consultation, and although feeble-minded, was high enough grade to perceive the situation, and was able eventually to persuade her husband to submit. The operation was performed, and the man has been allowed to go. Now he is able to live at home and earn his wages and support his family for perhaps a half of his time. Thus everybody is

happier; the State is saved the expense and trouble.

In conclusion, this great movement of reducing infant mortality is not only humanitarian, but appeals to our sense of justice and reason. But we must recognize that it entails upon society grave responsibilities. We ought to recognize these and face them. We ought to study the problem in all its bearings, and devote ourselves to its rational solution. To save these children alive, and to save them as adults from the consequences of their condition, for which they are not responsible, is a wise and humanitarian procedure. To save them from death to a life of crime, pauperism or prostitution is not humanitarianism; it is emotionalism.

BLOOD PRESSURE VARIATIONS AND TREATMENT OF HYPERTENSION.*

By J. D. WILLIS, M. D., Roanoke, Va.

Physician to the Lewis-Gale Hospital.

There are several variable factors which enter into the regulation of normal blood pressure, viz., the quantity of blood delivered into the arterial system by the heart, the peripheral resistance in the arterioles and capillaries, the elasticity of the vessel walls, and the vaso-motor control of the larger arteries, especially the splanchnics.

Arterial pressure is the amount of force exerted by the blood within the vessel. Systolic pressure is the amount of pressure exerted within the vessel at the height of ventricular systole. Diastolic pressure is the amount of pressure exerted within the vessel at the height of diastole. Pulse pressure is the difference between the systolic and diastolic pressures and represents the actual force of the propelled column of blood.

There is a normal average blood pressure in health for the different ages. Any departure from this is either physiological or pathological.

Physiological variations are always temporary and there is a prompt return to normal after removal of the instigating agent.

Pathological variations are usually constant, and there is only a return to normal or approach to normal after instituting measures for the correction of the dyscrasias which are directly responsible. Exceptions to this, however,

are low pressures following depletion of the system by diarrhœa, hemorrhage, etc., and in shock. With a favorable termination nature in these instances quickly restores pressure to normal.

In certain conditions pathological variations are compensatory, and a return to normal, without increasing the efficiency of associated functioning organs, would be very dangerous. For example, with a hypertrophied and powerful heart working to overcome the obstruction of an advanced chronic interstitial nephritis, should the high blood pressure in this case be lowered by vaso-dilatation, it would mean increased work on the heart, with a possible dilatation and a resulting pulmonary edema, also a lessened excretion of urine and a greater danger of uremia.

Physiological variations result from the performance or lack of performance of various normal body functions, the effects of stimuli, changes in atmospheric pressure, and the ingestion of substances which act directly or indirectly on blood pressure.

The normal blood pressure for each age and the difference in sex has been determined within certain limits by experimental and clinical observations. For the first year of life the systolic pressure ranges from 75 to 90 mm. of mercury.¹

Lauder Brunton² has made observations and found the maximum pressure in children from 8 to 14 years of age is 90 mm. of mercury; from 15 to 21 years, 100 to 120 mm., and from 21 to 65 years, 120 to 150 mm. Above 65 years it may remain from 135 to 150 mm., but may go up to 180 mm. or even higher on account of senile changes in the arterial system. In women the systolic pressure is 10 to 15 mm. lower than in men.

Faught³ says the normal systolic pressure of an adult may vary between 110 and 145 mm. of mercury.

Normal blood pressure is lowest a short time after falling asleep at night, and is highest during the forenoon. There is a slight rise during the active process of digestion, during muscular exertion, while in high altitudes, and when experiencing pain, emotion, and excitement. One can readily see, then, how necessary it is that individuals with hardening of the cerebral arteries shall avoid high altitudes and severe exertion, both physical and mental.

Habitual use of alcohol with over-eating seems to be the most fruitful source of chronic interstitial nephritis and hypertension, especially

*Read before the forty-third annual meeting of the Medical Society of Virginia, at Norfolk, October 22-25, 1912.

when associated with sluggish emunctories, although alcohol alone seems to influence blood pressure very little.

After smoking two to four cigars there is usually a temporary rise in blood pressure of 5 to 10 mm. of mercury.

Hirst⁴ found on examination of 100 normal non-pregnant women the average systolic pressure to be 112 mm., and on examination of 100 normal pregnant women the average systolic pressure to be 118 mm. This average was constant up to 7 1-2 months, after which there was a gradual rise to 124 mm. at the end of 8 1-2 months.

Bailey⁵ found an average rise to 140 and 150 mm. during the first and second stages of labor, the pressure being taken between pains. This shows an average rise of 6 mm. of mercury above normal up to the 7 1-2 months of pregnancy; from this to 8 1-2 months a rise of 12 mm.; and during the first and second stages of labor a rise of 28 to 38 mm.

Pathological variations of blood pressure result from toxic, nervous, and mechanical causes. Irritation to the vaso-motor centers from circulating toxins, whether they be absorbed into the circulation or retained katabolic substances, is probably the most frequent cause of hypertension. Under the toxic causes is auto-intoxication, syphilis, lead poisoning, etc.

Under the nervous causes come shock, fright, and certain reflex conditions. In shock, Crile⁶ has found the very low pressure to be due to exhaustion of the vaso-motor centers. In fright the opposite is found, a state of hypertension.

The contracted kidney and hardened arteries in advanced chronic interstitial nephritis act as mechanical obstructions to the onflow of blood. This requires a more forceful heart action, thus producing a condition of high blood pressure.

Disturbances of the internal secretions produce changes in blood pressure, the *modus operandi* of which are as yet very imperfectly understood. We do know, however, that in Addison's disease of the suprarenal glands, where there is a lessened production of the internal secretion, we have a low blood pressure. In hyperthyroidism the pressure is not constant; it may make quick changes from normal to hypo- or hypertension. And high blood pressure symptoms frequently put in their appearance at the time of menopause, thus suggesting

that the internal secretion of the ovary has a direct influence upon blood pressure.

Faught⁷ speaks of alimentary hypertension as the result of a normal abdomino-arterial reflex, made excessive by an over-abundance of food or an incomplete elimination of toxic substances. In other words, it is due to a chronic auto-intoxication. Alimentary hypertension kept up for prolonged periods finally results in the permanent hypertension of cardio-vascular renal disease.

In myocardial disease the blood pressure does not rise and remain so for a time, after the performance of a muscular feat, as is the case in health, although there may be a slight rise immediately after the act, to fall at once to below normal. In aortic regurgitation there is a great pulse pressure, the diastolic pressure falling almost to zero. This great pulse pressure is practically pathognomonic of this condition.

With the onset of acute nephritis there is a sudden rise of blood pressure. Approaching uremic convulsions can be detected by sudden and marked rise in pressure. Faught⁸ quotes Hirst as saying that a high and rising blood pressure is an invariable and early, often the earliest sign of toxemia, in the latter half of pregnancy. In the infectious diseases blood pressure is usually low.

I fear that the results of treatment of hypertension have been rather disappointing, since we have so largely treated this condition as a disease and not as a manifestation of other existing trouble. A thorough study must be given every case of hypertension in order that all existing pathological conditions may be found and treated. The success of treatment depends upon finding the cause. In case it should be due to nephritis, an appropriate treatment for this condition must be instituted; or in case auto-intoxication is the causative factor, this must be relieved by appropriate treatment.

Drug therapy is very useful, but must be used in connection with dietetic measures, hydro-, electro-, and mechano-therapy.

Capps⁹ has reviewed the literature on the effects of iodids on the circulation and blood vessels in arteriosclerosis. His conclusions are that iodids in therapeutic doses are not active vaso-dilators, and when long continued, do not materially affect blood pressure; and that the iodids probably owe their beneficial influence

in syphilitic arteriosclerosis to the absorption of the cellular exudate in the arteries.

There are, however, many advocates of the use of iodids for lowering blood pressure, and, indeed, the results of their use in conjunction with rest in bed, massage, a non-stimulating diet, and sedative baths, is often-times very striking.

The use of nitrites is indicated in the treatment of hypertension, and the forms most used are sodium nitrite, erythrol tetranitrate, manitol nitrate, and nitroglycerine.

Chloral is a very reliable drug for the reduction of blood pressure, but it must be used with caution lest the patient contract the chloral habit.

Dr. S. S. Gale, of Roanoke, Va., has reported to me the apparent benefit in the treatment of hypertension of cacodylate of soda, given hypodermically in increasing dosage, beginning with 1-2 grain every other day, and increasing gradually until 2 grains are given every other day. He has also found ovarian extract of value in the treatment of cases coming on at the time of the menopause.

In conclusion, I wish to emphasize that conditions of high blood pressure must be made the subject of most careful study as to causation.

BIBLIOGRAPHY.

1. Krehl, Clinical Pathology.
2. *Lancet*, October 17, 1908.
3. *The Sphygmomanometer*, by Faught.
4. *New York Medical Journal*, June 11, 1910.
5. *S. G. and O.*, Vol. xlii, No. 5, page 485.
6. *Keen's Surgery*, Vol. 1.
7. *The Sphygmomanometer*, by Faught.
8. *The Sphygmomanometer*, by Faught.
9. *J. A. M. A.*, October 12, 1912.

Proceedings of Societies, Etc.

NORFOLK COUNTY MEDICAL SOCIETY— MEDICAL SECTION.

Reported by FRANK H. HANCOCK, M. D.

Arthritis Deformans

Was the subject for discussion at the January, 1913, meeting of this section, Dr. Charles R. Grandy presiding.

Dr. J. J. Miller, introducing this subject for discussion, said that the terminology seems at first hopelessly confusing, but a careful study will clarify the atmosphere considerably, and enable the student to fix intelligent attention upon the various groups of chronic diseases of

the joints. At least he can understand what is meant by the designations employed, which is a good deal.

Arthritis deformans is very succinctly described by McRae, who gives the most reasonable classification we have seen, to include the group of cases of arthritis which have as prominent features a *tendency to chronicity, to permanent change in the joints, or structures about the joints*, those forms of arthritis with a definite etiology (gonorrhœa, etc.) being excluded. This is what we mean by clarifying the atmosphere. Certainly there is no tedious ambiguity about this statement or employment of confusing terminology that should have been obsolete long ago. We speak here of arthritis deformans just as did Virchow, who named the entity. We may be just as wrong as those clinicians were a hundred years ago who gave specific designations to certain acute fevers, but we must adopt some classification, however the future may change it, as the future will certainly do. Nothing at this moment that we can recall is so certain to undergo early transformation and enlightenment as our present knowledge of these chronic joint inflammations, with their endless varieties and their tendencies to deformative changes. Already new observations are depleting the large group of chronic arthritic cases, whose etiology was unknown, removing them at once to a definite class, where some of the cocci operate, or the tubercle bacillus, or pure rheumatism or gout, or those definite neural changes—syringomyelia, and Charcot's disease of joints. These latter two very strikingly resemble the changes of arthritis deformans in their progressive disorganization of joints, and they may all, as Tubby ingeniously suggests, be due to intestinal toxemia, expressing itself through the spinal cord, with the blood as the conducting medium. The symmetry of this affection—hand and hand, knee joint and knee joint—is alone explicable through loss of some central controlling factor. Do not the toxins of the exanthemata and other infections produce nerve lesions, as in the well-known case of influenza? Arthritis patients have increased reflexes, fibrillar contractions of muscles, tachycardia, vaso-motor disturbances, and progressive muscular atrophy, as of the interossei muscles of the hand. Thus does Tubby argue for the spinal involvement in arthritis deformans. It is a facile speculation.

For convenience of study we may adopt this simple arrangement of McRae's. 1. A form in which the changes predominate in the soft structures around the joint, known as the peri-articular group. 2. A form in which the chief change consists in marked atrophy both of bones and cartilages, with associated muscular degenerative changes. This is the "atrophic" form. 3. Those cases which have a marked bony overgrowth, and are termed the "hypertrophic" form.

These forms may merge into one another, but, as a rule, they do not, and there are some cases that cannot be definitely classed because of a combination of conditions.

It is to the atrophic form, with its indelible changes, that we are so much indebted for the evidence it offers of the prevalence of the disease in most remote antiquity. Arthritic deformities having been found in bones of Egyptians buried in 1300 B. C., of Romans buried in Britain, from the ruins of Pompeii, and from the Catacombs of Paris.

In the celebrated report of the Cambridge Committee, which collected a series of 1,228 cases of arthritis deformans, the disease occurred in 76 per cent. of women and in 24 per cent. of men.

The largest number of cases developed during the third decade, though the variety of the disease has some influence, the peri-articular and atrophic forms occurring early, and the hypertrophic form later—that is, in older people.

Concerning the racial features of this disease, it is an interesting fact that it is rarely seen in the negro. In the Johns Hopkins reports its relative frequency was eighteen white to one black. Conversely, the negro has more rheumatic fever than the white man, as he has more of gonorrhea and tuberculosis. Therefore, we dismiss gonorrhea as a predisposing factor, several writers having attempted to establish a relationship. The negro is indispensable to the prevalence of this social disease, or will become so, when the disease is properly attacked at its headquarters—prostitution.

We now advance in our views, and it is necessary to do so, if we are to predicate anything of a positive nature in connection with the etiology of this disease. All recent writers believe, and they have so written—all we have seen—that arthritis deformans is associated with some *septic disorder*, which has occurred shortly before

the first symptoms, lowering the vitality sufficiently for a toxemia to manifest itself through the spinal cord, or otherwise, in the way that is characteristic of this malady. The more carefully we go into the histories of these cases the more certain these facts become.

Analyses of urine and feces may show intestinal putrefaction, chronic pancreatitis, duodenal indigestion, and evidences of an intestinal toxemia, that may well be responsible for the perversions of chronic arthritis.

Again, such other septic lesions have been found as carious teeth, enlarged tonsils, chronic nasal, and post-nasal catarrh, leucorrhea, endometritis, rectal ulceration, pyorrhea alveolaris. In fact, the Cambridge report alleges that over 50 per cent. of its cases followed and were due to the slowly developing toxemia of carious teeth, and the progressive necrosis of the alveoli that is a feature of Riggs's disease.

So it is practically certain that there is *some form of infection somewhere*. Upon the discovery of the primary focus depends the prognosis of the particular case of arthritis deformans, and not upon any matter of hygiene, or amount of sunlight, or rest, or balneology, or physical, or electro-therapeutic treatment.

If definite changes have already occurred in the joints, you may not get a perfect restoration, but in all likelihood there will be an arrest of the disease—a matter of immense consequence to these unfortunates. Often tonsils that have no evidence of disease on the surface have been found to contain streptococci in deep pockets.

It is generally believed that next to the mouth and throat the genito-urinary organs are the most important causes of infection. Therefore, the prostate and seminal vesicles are to be carefully massaged in the male and their contents examined, and a like exploration of the female generative organs made. Upon this hypothesis of *infection* all future consideration of the subject depends. It is of immense significance that this disease has been taken from its shadowy, nebulous past, and placed upon such rocks of solid facts as the medical men of this generation have placed it.

The chairman asked Dr. Ruffin to explain the relationship between disorders of the digestive tract and chronic joint affections.

Dr. Ruffin, responding to the request, said that it has been a very obscure relationship, in-

deed, but the belief in its actuality has steadily increased, especially during the last decade, and there is now a good deal more known about it. It is scarcely to be doubted that this uncovering of cause and effect is very directly due to W. Arbuthnot Lane, who anticipated the present situation by twenty-five years, expressing as he did in the late eighties the opinion that some sort of auto-intoxication was responsible for arthritis deformans, or rheumatoid arthritis or infectious arthritis, or whatever classification it pleases one to accept. He later qualified this statement by saying, and apparently proving, that the auto-intoxication was due to the absorption into the circulation—from the large intestine principally—of more toxin than could be dealt with effectually. This absorption was due, he said, to delay in passing of the fecal contents along the large intestine or in certain kinks that he described, the delay in either or in all cases being due to certain architectural defects, inherited and acquired, of the abdominal organs, which, generally speaking, were of the nature of a descent, and were called visceroptosis, or splachnoptosis, and especially described as enteroptosis, gastropstosis, nephropstosis, etc.

Now it is of interest that this subject of ptosis was developed by other men as a thing entirely apart from any consideration of joint relations. In 1885, Glenard published the first definite account of ptosis of the abdominal organs in a paper that has become classic. Five years later, Ewald wrote of it for the German profession, giving Glenard the credit of discovery, but differing very largely from him in matters of deduction. In 1896, Stiller contributed to the importance of the subject in two very serious papers, wherein he sets forth the *habitus enteroptoticus* and various other things.

Mathes and Albee and others further developed this exceedingly interesting discovery of ptosis, but the speaker said he could not dwell longer upon its history except to say that Mr. Lane saw in it the cause of his intestinal stasis, and hastened to avail himself of the situation by repairing these mechanical defects, or more particularly by the use of his method of short-circuiting the ileum into the sigmoid and removing the colon.

Those who attended the last session of the Clinical Congress of Surgeons in New York must have been impressed with the several pa-

pers read there, and the pictures shown of enteroptosis, particularly of the remarkable excursions of the transverse colon, which was often seen to have descended into the pelvis, and to be contending there for relative position with the sigmoid and the cecum.

Now, of course, there was necessarily intestinal stasis in these great loops, and sometimes there were arthritides. The question has been asked if there is a definite relationship between enteroptosis, with the necessary entailment of absorption, and chronic arthritis? The speaker believes there is, and that it has been thoroughly established, for the reason that severe cases of chronic arthritis, with definite bone lesions, hypertrophic and atrophic, absorption of cartilage, and general progressive disfigurement, have been entirely arrested by preventing this absorption in the colon. This prevention may be effected in various ways, that is, by relieving the ptosis through operation, restoring the colon to its normal transverse position, by suturing the omentum to the anterior abdominal wall (Coffey) or removing it, as Mr. Lane does. Various intestinal affections may influence joints, as has been pointed out by Marshall, which is of interest in showing especially the capacity to attack joints on the part of the toxin that develops from intestinal putrefaction—a capacity that amounts to an affinity. Keen states that there were 84 cases of arthritis in 1,700 cases of typhoid collected by him, and Garrod estimates that 3 or 4 per cent. of bacillary dysentery cases show joint complications.

Musgrave believes that chronic rheumatism, both muscular and articular, are frequently encountered in amebic dysentery, and that there is undoubtedly a definite relationship between joint affections and amebiasis of the intestine.

Dr. J. W. Hunter said that for a moment he would discuss this question of ptosis since it has been shown to be one of the causes of arthritis deformans, the subject of the evening. He agreed, he said, with Martin, of Chicago; Goldthwaite, of Boston, and Smith, of Grand Rapids, that the body formation taken in connection with the erect position of man is the principal cause of ptosis; and that this physical facility is aided in every way by our manner of living, our insanitary surroundings, with resulting malnutrition, our curious barbaric method of educating our girls, straining their physical resist-

ances, lowering their vitality, creating digestive disturbances that often result in this general ptosis, from which women for the most part suffer, as they suffer for the most part from arthritis deformans.

Now, therefore, we have a civilizational cause for visceroptosis, with a physical predisposition, both of which conduce to the sinking of the intestines and their piling up at the bottom of the abdominal cavity, giving rise to intestinal stasis, absorption, toxemia, and, finally, arthritis deformans. Huntington has recently called attention in a very striking way to the anatomy of the peritoneum in the erect mammal as compared with the peritoneum in quadrupeds, their widely differing distributions and points of fixation. Thus, in man the liver fuses with the diaphragm, while in the quadruped it is suspended by a mesentery, the same as the other organs.

In man the duodenum is firmly fixed to the right abdominal wall, while in the quadruped it is freely movable. In man the ascending and descending colon and the two flexures are normally fixed to the posterior abdominal wall without the intervention of mesentery, while in quadrupeds the large intestine has a long mesentery and is freely movable. In man the great omentum grows down over the transverse colon and grows to it, which is not the case with the horizontal mammal. In man the pancreas has been rotated behind the peritoneum and fixed to the abdominal wall; in quadrupeds it rests between layers of mesentery.

In the monkey, which is a quadruped with a tendency to stand erect, the pancreas becomes adherent, and the duodenum is more firmly fixed than in the original quadruped. Of course, the purpose of these prenatal adhesions and fixations in the erect animal is to prevent their descent by gravity, and must have been gradually forming through thousands of years of man's adaptation to his special place on this planet, as Nature's favorite article.

Dr. Junius F. Lynch said that arthritis deformans was well named by Virchow, who singled out its characteristic deformity as the name by which it should be known, a deformity that is dependent upon muscular contraction and tissue destruction.

The disease is polyarticular and symmetrical; it is insidious invariably, and, therefore, cannot be divided into acute, subacute, and chronic

stages, as some writers have divided it. It usually progresses slowly, involving more and more peripheral joints, with its initial sign of *stiffness*, and then *weakness* and *swelling*, assuming now the characteristic *spindle shape*, and again becoming *nodular*. This nodular appearance may be due to atrophy of the periarticular structures as well as to thickening of the joint membranes or bones. The deformity increases, and finally leads to *crippling*.

There are times when the disease progresses less rapidly, even in severer cases, but it cannot be said that there is ever an intermission. Periods of apparent quiescence do occur and sometimes last for years, but the disease inevitably returns, destroying whatever might have been left of motion, of comfort, or of figure, until the luckless patient passes into an irretrievable state of suffering, wretchedness, and deformity.

The classifications of this malady have been not only unintelligent, but almost unspeakable, every authoritative writer introducing without the slightest hesitancy some new set to conform to his own fancy, so that Jones' osteo-arthritis has become Goldthwaite's atrophic arthritis, and one writer's metabolic arthritis becomes atrophic degenerative to another. Perhaps a more correct idea of the pathology will eventually relieve us of this confusion.

The speaker was much impressed a year or two ago in reading in the *Journal of American Medical Sciences* an article on this subject by Nathan, of New York, his classification seeming to conform exactly to the changes in the joints, as nearly as names could be made to do, and his special treatment of these heretofore unrelievable joints was of unusual interest. Nathan gives thymus gland extract internally, and was led to do so, he says, by the experiments of Basch, who showed in certain animal experiments that bone development followed inoculation of thymus gland extract. It was claimed that joint symptoms subsided upon the administration of thymus, and returned when the thymus was withdrawn. He asserts also that where the joints are beyond repair, improvement in the general symptoms has usually occurred; such patients have become more comfortable, and have taken on flesh.

Where such a general improvement has manifested itself, Nathan operates upon the ankylosed joints, doing tenotomies especially, divid-

ing all contracted tissues with the tentome, and applying light plaster-of-Paris bandages for several weeks afterwards. He does not proclaim thymus to be a specific, the nature of arthritis deformans with its varying causes precluding such a possibility.

Section adjourned.

Analyses, Selections, Etc.

Dreams and Their Analysis in Reference to Psychotherapy.

H. W. Frink, New York, states that the study of dreams enables one to penetrate regions of the mind that have not heretofore been reached. The day-dream constitutes the fulfilment of a wish; in the night-dream the wish or latent thought does not clearly appear; it is presented in a condensed or distorted form. An idea that is for some reason unpleasant is repressed, pushed back in the consciousness, and remains there until it is brought out by the dreaming mind. The wishes that receive imaginary fulfilment in dreams are repressed wishes. They are wishes that are unfulfilled during the day by accident; that are rejected on account of moral reasons, or conscious wishes of childhood that were repressed; many of these are connected with the sex impulse. The dream is a compromise between two opposing psychic forces, the repressing force and the repressed stream which seeks fulfilment. The conversion of the latent into the manifest content of dreams is carried out in one of several ways; by condensation, by displacement, by dramatization, by elaboration. The function of the dream is as a promoter of sleep. It stills and satisfies repressed wishes without annoyance to the sleeper. The analysis of dreams is a procedure that will bring one to the inmost recesses of the patient's mind. Analyses of two typical dreams are given with their interpretation. Dream analysis is an enormous aid to therapeutics. When the latent wish is found and a discharge to the emotivity is secured the symptoms disappear.—(*Medical Record*, May 27, 1911.)

Iodoglycerole in the Treatment of Mouth Infections.

Talbot, in the *Journal of the American Medical Association* of August 3, 1912, reminds us that no one drug has come into general use as

a germicide with such universal satisfaction as iodine. Its virtues are so well known in surgery as to require no comment.

Talbot began the use of this drug in 1878, when he commenced his researches in interstitial gingivitis. As a mouth antiseptic and germicide it acts more quickly and more satisfactorily than any other drug. The objection to the use of the official preparation, which contains 7 per cent. iodine dissolved in alcohol to which is added 5 per cent. potassium iodide, is due to the fact that frequent applications will destroy the mucous membrane of the mouth. To obviate this, he prepared the following and called it iodoglycerole:

Water, 2 parts;

Zinc iodide, 3 parts;

Iodine (crystals), 5 parts;

Glycerine, 10 parts.

As compared with the ordinary tincture of iodine, the astringent properties are greatly increased; the glycerin causes rapid absorption and the irritating effects are reduced to a minimum. The penetrating effect is remarkable. The glycerin thickens the preparation and prevents it from mixing with the saliva and running over the mouth as the ordinary tincture will do. This preparation may be used on the gums every day, if necessary, without injuring the parts. The teeth as well as the soft parts of the mouth should be treated in like manner, since all germs are destroyed. He has been able to reduce decay of the teeth in his patients in the past ten years from 30 to 40 per cent. All patients receive this treatment before or after each sitting.

Patients present themselves with fetor of the breath, pus about the teeth, inflamed gums, diseased alveolar processes, acid mucus and saliva, the latter being also ropy and stringy, plaques on the teeth and decay, with all the forms of bacteria from the most harmless to the more dangerous pathogenic micro-organisms, such as the pneumococcus, diphtheria bacillus, tubercle bacillus, and the germs of children's diseases. Miller has demonstrated more than fifty varieties of micro-organisms in the mouth. Pus germs are often present in and about the necks of the teeth, and easily infect wounds and inflamed tissue. These germs are also taken into the stomach at every swallow; some pass through into the intestines and have been found in the feces. While most of the better class of

patients possess fairly cleanly mouths, yet from 12 to 20 per cent. of all patients have pus germs in the oral cavity.

Tooth decay is due to lactic-acid ferment, and nearly every person has it to a greater or less extent. Clinic and dispensary patients, and especially the poorer classes, who never use brushes, washes, or powders in the mouth, possess regular cesspools of filth.

To prevent contagions and infections among public school children, their teeth, gums, and mucous membrane should be treated with iodoglycerole as often as once a week during the school term.

What Talbot wishes particularly to call attention to is the wonderful effect this preparation has on bone disease, such as caries, necrosis, osteomyelitis, and all pus surfaces such as ulcers, carbuncles, boils, etc. When applied to the bone tissue, it does not corrode and coagulate, but penetrates into the tissue, reaching the remote recesses of the cavity, and destroys the pus and other germs with which it comes in contact.

Caries of the alveolar process due to abscessed teeth yields readily after the roots have been amputated, often without curettement of the bone. The soothing effect of the glycerin, the astringent and stimulating properties of the zinc iodide, and the germicide and antiseptic qualities of the iodine, all help to restore bone tissue quickly to health.

In all operations on abscess cavities, he thinks it should be used before as well as after operations; in extracting teeth, with or without abscess formation, it should be used before as well as after; in inflamed and diseased tonsils in which germs are always present, the preparation may be used with excellent results.

Care should be taken in compounding this formula to see that the druggist uses the pure zinc oxide.—(*Therapeutic Gazette*, January, 1913.)

Coxalgia and Chronic Appendicitis With Adhesions.

Thos. R. Brown, Baltimore, concludes as follows: From the study of twenty cases, all verified by operation, in three of which the coxalgia was the predominant symptom, while in many others it was present, but did not dominate the picture, we think we are quite justified in concluding that coxalgia is quite often met with as a part of the picture of chronic appendicitis, a

disease in which the symptoms may be so vague or so definitely referred to some other organ in the abdominal cavity that a diagnosis is very difficult to reach. In a few cases a definite, severe and persistent coxalgia may be the most striking feature of the case and may help us in reaching a diagnosis. From an appreciation of this fact, from a careful study of the temperature, at rest and after exercise, and of the leucocytes, both the absolute number and the percentage of the various forms, and a careful study of the X-ray photographs and repeated fluoroscopic examinations, a diagnosis may be reached which would otherwise be impossible. Certainly all cases of coxalgia of a mild form, especially if associated with ptosis of the abdominal viscera, should make us consider chronic appendicitis with ileo-cecal adhesions as a possible cause, and should lead us to especial investigations along the lines mentioned above. As to the cause of this pain, it is conceivable that it might be due to mechanical, or it might be due to chemical causes. We have reported elsewhere a long series of cases of myalgia, neuralgia and neuritis, secondary to a disturbed metabolism, possibly that associated with the so-called arthritic diathesis of the French, characterized by a marked increase in the acidity of the urine and markedly benefited by the administration of alkalies in large amounts, but in these cases of right-sided coxalgia it seems far more probable that the pain is not due to circulating toxins, due to the fecal retention and the abnormal permeability of the blood and lymph vessels in the adherent loops of intestine, but is based on anatomical grounds, and is due to the mechanical effect of the dense adhesions. The direction in which the appendix points and the nature, extent and position of the adhesions seem to be the determining factors in deciding whether in the individual case coxalgia is or is not to be met with.—(*Maryland Medical Journal*, February, 1913.)

Sterilization of Criminals.

A law providing for the sterilization of defective criminals has, by a small majority, passed both Houses of the Vermont Legislature, and has been laid before the Governor of that State. Strong pressure will be brought to bear upon the Governor both for and against the signing of this bill.

Correspondence.

Registration of Physicians in Virginia.

The following letter will shortly be sent by the Secretary-Treasurer of the Medical Examining Board of Virginia to all Virginia practitioners who are not then registered:

NORFOLK, VA., Jan. 20, 1913.

Dear Doctor:

The physicians of Virginia have at last succeeded in having a law enacted by the Legislature, which, if supported by the profession, will soon do away with all quacks and illegal practitioners in the State.

Unless all the physicians of the State are registered, past experience has amply demonstrated that conviction is impossible.

Registration has the following advantages: A duly registered practitioner may sue in the courts of law for the recovery of charges for medical and surgical attendance or advice; he can sign valid medical, death, and birth certificates; persons requiring medical aid can distinguish between qualified and unqualified practitioners.

The new law makes the book in the office of the Clerk of the County or Corporation Court an official register, and after March 12, 1913, any practitioner who is not registered there is liable to be penalized for practicing illegally.

Those behind this law had no desire to impose a hardship upon any one, and earnestly ask the co-operation of every physician in the State. Upon reflection you will see that we are asking very little of you. If you have a certificate from the State Board of Medical Examiners and have not registered it with the Clerk of your Court, go and do so at once. If your certificate has been lost, write me for directions as to how to obtain a duplicate. If you have never received a certificate from said Board, but practiced in Virginia prior to January 1, 1885, a Verification Certificate will be issued on your own affidavit to that effect, if you are a member of your State Medical Society; or to any physician who produces a license to practice medicine, or a verified copy of same, issued by some Commissioner of Revenue of this State prior to that date, or who, on his own statement to that effect, is vouched for by a member of the State

Examining Board. A fee of fifty cents is charged for the Verification Certificate.

If you cannot comply with the above stated provisions, go before the Judge of the Circuit Court and the Commonwealth's Attorney and produce evidence before them that you were a practicing physician in Virginia prior to the year 1895, send their affidavit to me together with a post-office order for fifty cents, upon receipt of which a verification certificate will be issued to you.

The above statements refer to Osteopaths as well, save that the year is 1903 instead of 1885.

Remember that you are one of a profession which needs such protection as this law gives. Under previous laws the practitioner had to prove irregularity before conviction was possible. This law makes it incumbent upon the defendant to prove his right to practice.

Bespeaking your hearty co-operation in this important matter, I am,

Very sincerely yours,

HERBERT OLD,
Secretary-Treasurer.

Editorial.

Every Practicing Physician in Virginia Must Register Before March 13, 1913, to Be a Legal Practitioner.

The Virginia Legislature at its last session passed a new medical law, entitled "*An Act to regulate the practice of Medicine and Surgery in the State of Virginia*," etc., approved March 13, 1912, Section 6 of which reads, in part, as follows:

"6. *Registration of certificates; verification certificates; duplicate certificates; reciprocity. — Within one year after the passage of this act all licensed practitioners of medicine in this State shall, as above provided, register their certificates to practice medicine in the office of the clerk of the circuit or corporation court of the county or corporation in which they reside.*"

Further information, if desired, may be obtained from Dr. Herbert Old, Secretary-Treasurer of the Medical Examining Board of Virginia, Norfolk, Va.

In connection with the above announcement, we would call the especial attention of doctors who have not already registered, to a letter from

Dr. Old, which appears in this issue, under the head of *Correspondence*. This communication will be found to furnish exact information as to the requirements of practitioners to register.

The Therapeutic Value of Telling the Truth.

A good many years ago Dr. Cabot, of Boston, wrote a paper which was published in one of the New York journals, on an experimental study in telling the truth. His idea was that the mental effect upon the patient is better if he is frankly informed of his condition than if he is deceived. There is probably not the same need for such a paper these days as when Dr. Cabot wrote his essay, though the matter even now hardly receives sufficient attention.

There are three points connected with the practice of telling a patient the truth that we would emphasize: First, the mental effect upon the patient; second, the moral effect upon the physician, and third, the attitude of the public toward the profession.

There is no occasion to ram brutal truths down the throats of patients if they have not asked for information, but, on the other hand, it is even more unjustifiable deliberately to deceive a patient. Even bad news may with tact be told truthfully without any undue depression. If he believes that the physician is telling the truth, his whole mental attitude is different. From being one of suspicion and apprehension, it changes to confidence and trust. Faith and confidence are excellent therapeutic measures for one suffering from any disease. All surgeons of experience have noted that a patient who undergoes an operation with a mind confident in the ability and integrity of the operator makes a better recovery, other things being equal, than one who is timid and distrustful. Crile has brought this out forcibly and bases his *anoci association* chiefly upon this fact. In the majority of cases in the general run of practice the proper mental attitude of the patient is one of the most important things to be attained. How can a patient have confidence in a doctor who deceives him?

As to the moral effect upon the physician himself, no one can continually practice deception, no matter how good may be his intentions, without suffering a certain amount of moral degeneration. The physician who gives a patient one diagnosis and the relatives another, hoping that one or the other diagnosis may prove cor-

rect, cannot have the same respect for himself as if he had been frank in telling both patient and relatives what he honestly thought of the case.

Thirdly, the attitude of the public toward the medical profession generally is not a very flattering one, and while such discrimination against doctors is, in the main, unjust, it is largely founded upon the belief that the physician will not tell the patient or the patient's relatives the truth as to diagnosis, impression, or treatment. As long as this impression prevails, doctors can never hope to occupy the highest position in the esteem of the public. The universal practice of being truthful with patients and patients' friends and relatives, and sufficiently courageous to acknowledge ignorance or mistakes when there is occasion to do so, will not only benefit the patient in a therapeutic way by inspiring confidence, but will increase the self-respect of the physician himself and greatly enhance the regard in which the public in general holds the medical profession.

J. S. H.

Tri-State Medical Society of the Carolinas and Virginia.

The Preliminary Programme of the fifteenth annual session which convenes in Norfolk, Va., February 19, shows a total of sixty-six papers on a great variety of subjects. An informal reception will be tendered the Society at the Country Club by Dr. Southgate Leigh on the first evening, and an oyster roast will be given by the local profession at Cape Henry the second day. This promises to be a most interesting meeting scientifically and socially, and it is hoped there will be a large attendance. Dr. Southgate Leigh, Norfolk, chairman of the committee of arrangements, or Dr. Rolfe E. Hughes, Laurens, S. C., secretary of the Society, will furnish any information desired.

Board of Directors for Medical College of Virginia.

The last official step in the merging of the University College of Medicine with the Medical College of Virginia was the appointment by Governor Mann, January 28, of the Board of Directors for the new institution. The appointments were made by the Governor according to recommendations made by the two colleges, Eppa Hunton, Jr., being nominated by the two colleges jointly as the nineteenth member.

Those selected from the *University College of Medicine* are: George L. Christian, L. Z. Morris, E. D. Taylor, H. L. Cabell, Thomas L. Moore, and William R. Miller, all of Richmond; John Johnson, Alexandria; and Drs. Paulus A. Irving, Farmville, and Robert C. Randolph, Boyce. Appointments made from the *Medical College of Virginia* are: Drs. T. H. Barnes, Suffolk; J. N. Barney, Fredericksburg; J. B. Fisher, Midlothian; Wm. L. Harris, Norfolk, and H. S. Myers, Forks of Buffalo; and E. L. Bemiss and John S. Harwood, of Richmond; and C. P. Cardwell, Hanover, and J. D. Johnston, of Roanoke.

One of the first duties of the new board, after electing a chairman, will be the appointment of members of the new faculty. There will be no president of the new college, and the faculty, when appointed, will select its own dean.

The Southside Virginia Medical Association

Will hold its first quarterly meeting for 1913, in Richmond, March 11. The secretary, Dr. E. F. Reese, Jr., Courtland, has sent out the call for papers, and it is hoped that the Richmond meeting will be a banner one in point of attendance and interest.

The Federation of State Medical Boards

Will hold its annual meeting at the Congress Hotel, Chicago, on Tuesday, February 25, 1913. Essayists, eminently qualified, will prepare papers upon the following subjects:

"Is Universal Reciprocity to Be Desired?"

"Should Medical Boards Require One or More Years of College Work Preliminary to the Study of Medicine?"

"Should One or More Years in a Hospital Be Required for Admission to the Examination for Medical Licensure?"

"Rules and Regulations Governing Examinations for Medical Licensure."

"Qualification of Examiners."

"What Fee Should Be Required for the Examination?"

"Benefit of Having a Single Federation of State Medical Boards and Method of State Board Record Keeping."

"Means of Keeping Politics Out of State Board Affairs."

These topics are all of practical and vital interest to medical colleges, medical examining boards, the profession at large and the public. Those contributing the papers on these subjects

come with years of experience, and no medical board can afford not to be represented. An earnest and cordial invitation to this meeting is extended to all members of State Medical Examining and Licensing Boards, teachers in medical schools, colleges and universities, delegates to the Council on Medical Education of the A. M. A., to the Association of American Medical Colleges and to all others interested in securing the best results in medical education and legislation. The officers of the Federation are: Arthur B. Brown, M. D., president, New Orleans; George H. Matson, M. D., secretary-treasurer, Columbus (State House), Ohio; James A. Duncan, M. D., chairman Executive Committee, Toledo.

Pine Camp, Richmond, Va.

The annual report of this sanitarium for the treatment of tuberculosis patients of Richmond and vicinity shows that the cost per diem per patient for 1912 was 98 cents. The Camp received \$8,000 from the city and a little more than \$10,000 from other sources for its maintenance last year. While this sanitarium was originally intended for only advanced cases of tuberculosis, the completion, during the year, of a new pavilion, which increases the daily capacity of the institution to thirty patients, has enabled it to receive a few incipient cases, some of which have been sufficiently benefited to return to their work.

A matter brought before the board of directors at their annual meeting was the need of a similar hospital for the care of colored consumptives, as each case left in the city is a constant menace to the community. It is to be hoped this matter will shortly receive the attention it merits.

Hookworm Inspectors Visiting Public Schools.

Until Spring opens, Virginia's hookworm inspectors are visiting the rural public schools examining the pupils for hookworm disease. One inspector has been assigned the counties east of the Blue Ridge Mountains, another the Valley of Virginia, and a third is busy with sanitary survey work in the various counties. When the roads become passable, the public dispensaries, where the general public may obtain free treatment for hookworm disease will be resumed. Another field inspector will be appointed in the near future to work with those already in the field.

Personals.

Dr. Stephen Harnsberger, Catlett, Va., has been appointed a delegate to represent Virginia at the meeting of the National Legislative Committee of the American Medical Association, which meets in Chicago, February 26; and

Dr. Herbert Old, Norfolk, Va., has been appointed to represent the Board of Health of Virginia at the Federation of State Medical Boards, which meets in the same city, February 25.

Appointments in National Guard of North Carolina.

Dr. Samuel Westray Battle, Asheville, has been appointed surgeon-general of the National Guard of North Carolina, with the rank of colonel, and

Dr. Baxter Hunter, Charlotte, assistant surgeon-general with the rank of lieutenant-colonel.

The Medical Inspection of School Children,

Which is considered such an important branch of health work in civilized countries, is now being practised in the Philippine Islands under the direction of the Bureau of Health, with great benefit not only in the improvement of actual physical defects, but also the education of the children in health matters. The poorer classes in the Islands show marked ignorance in sanitary matters, many of them never consulting a doctor. In the Philippines, the medical inspectors not only make inspection and recommendations, but, in worthy cases, administer treatment in the hospitals or dispensaries which have been established there.

It will be interesting to note that in 12,320 examinations made in the city of Manila for school year ending March 29, 1912, there was found a total of 7,095 physical defects, of which 2,474 received treatment in the hospitals or dispensaries.

Dr. Frank E. Booker,

Of Houston, Va., has been re-elected physician to the Halifax County almshouse.

The State Conference on Charities and Corrections

Held a three days' session in Danville, Va., beginning January 26, Dr. Douglas S. Freeman, of Richmond, presiding. Among the prominent medical men who addressed the Association were Drs. L. L. Lumsden, U. S. Public Health Service; Allen W. Freeman, Richmond; W. Brownley Foster, Roanoke; Powhatan S.

Schenck, Norfolk, and A. S. Priddy, of the State Epileptic Colony. The colored people of the State were especially commended for the active co-operation they have given the Association.

The Virginia Health Almanac,

Issued by the State Health Department, has made its appearance for this year in a more attractive garb than for the past two years, and with its usual almanac data and health monologues will be found as attractive as usual. As the issue is somewhat limited, early application for copies should be made.

The popularity of this method of disseminating knowledge on health matters is evidenced by the fact that three States—Kansas, Mississippi and North Carolina—have already adopted and published almanacs similar to the ones first issued by the Virginia Health Department in 1910.

\$50,000 to Fight Tuberculosis in Georgia.

We note that by the will of the late William G. Raoul, filed for probate in Atlanta, Ga., \$50,000 was left to be used in the fight for the extermination of tuberculosis in Georgia.

Lieut. Edwin W. Patterson, M. R. C.,

Has been relieved from duty at Ft. D. A. Russell, Wyo., and will proceed to Ft. Hunt, Va., for duty.

Excellent Opportunity for Energetic Doctor to Locate in Virginia.

\$7,500 will purchase a beautiful country homestead, approximating 147 acres in a desirable district, 1 1-2 miles from railroad, offering a profitable practice. Houses, orchards, shade trees, telephone, free delivery, and excellent roads. Buildings and improvements alone cost more than the price asked. Address Thos. P. Spencer, 165 Broadway, New York, N. Y. (Adv.)

Obituary Record.

Dr. Henry B. Edmondson,

Of Broadford, Va., a prominent physician of Southwest Virginia, died at Marion, January 18, after having been in failing health for several years. He had also for some years made his home in Bristol. Dr. Edmondson graduated in medicine from the University of Maryland in 1891, and had been a member of the Medical Society of Virginia since 1893.

THE Virginia Medical Semi-Monthly.

(FORMERLY VIRGINIA MEDICAL MONTHLY.)

Vol. 17, No. 22.

Whole No. 406.

RICHMOND, VA., FEBRUARY 21, 1913.

10 Cents a Copy

\$2.00 a Year

Original Communications.

A PLEA FOR THE SANATORIUM TREATMENT OF TUBERCULOSIS.*

By J. J. LLOYD, M. D., and B. L. TALIAFERRO, M. D.
Catawba Sanatorium, Va.

In presenting a paper on this subject, we do not presume to offer any new ideas, but simply to ask you to consider for a few moments the question from a totally unbiased standpoint. Step aside, if you please, from your own opinion and convictions, if they are in favor of home treatment, and let us look at the subject from the standpoint of the "men on the job," the men who, perhaps, in the majority of cases, have had the disease themselves.

You say they are biased, prejudiced. Maybe they are, but they have been in general practice and can view the subject from both aspects. Let us discuss the question.

We will assume that all medical men agree that the essentials for an arrest or cure of tuberculosis, whether at home or in a sanatorium, are:

Rest of mind and body;

Pure fresh air, day and night;

Good nourishing food;

Proper medical supervision;

Co-operation on the part of the patient and patient's family.

In the profession there are many men, and "Many men, many minds." There are those who have such a dread of the disease (phthisiophobia) that they are anxious and ready to refer as soon as possible their tuberculous patients to specialists or sanatoria, men who take little

interest in the disease—who prefer to have nothing to do with it.

There are those who are indifferent—pessimistic—who leave the patient to choose whether he will be treated at home or at a sanatorium, or otherwise. The patient may be advised to go West, to Saranac, to Liberty, Asheville, to the country, and then he is allowed to drift for himself. Would it be surprising if we found that these men did not recognize the disease in its incipency? A prominent specialist recently said: "When the average general practitioner finds it necessary to strip his patient and make a careful chest examination, the diagnosis of tuberculosis is already made." If this be even partly true, he must have referred to the two classes just mentioned. We will not admit that it is true of the average general practitioner.

Then there are those who are intensely interested, who are optimistic, but who think the home treatment all sufficient.

Lastly, there are those who are interested and optimistic, but who believe that the best results can be obtained by having their patients spend at least the first months of their treatment at a well-conducted sanatorium.

As to the first class, we must admit that the careless consumptive is a menace, more particularly to their own households. If, however, we have patience and take time to impress on them the importance of using all of the ordinary precautions, such as covering the mouth and nose when coughing or sneezing, suppressing the cough when possible, the use of the pocket and sputum cup, frequent washing of hands, proper disposal of sputum, boiling of dishes, sunlight and fresh air in rooms, etc., there is practically no danger. We know of no case on record of an employee contracting the disease in a well-conducted sanatorium. When a patient

*Read before the forty-third annual meeting of the Medical Society of Virginia, at Norfolk, October, 22-25, 1912.

thoroughly understands why he should be careful, it is seldom that he will disregard the simple instructions given him.

Let us not forget that milk from tuberculous cattle is undoubtedly a frequent cause of tuberculosis; that in such cases perhaps the bacilli have remained dormant for years awaiting suitable conditions to develop. Many believe the inhalation theory to be less important than the ingestion theory.

It is safe to say, we believe, that one seldom contracts the disease in the open air. Fresh dry air and sunlight soon destroy the vitality of the bacillus. So much needless anxiety and fear might be prevented if we can teach our patients these facts.

If the average general practitioner reads the current literature and from time to time goes off for special work, if he keeps abreast of the times, he will be more enthusiastic about tuberculosis. Many think tuberculosis one of the most curable of chronic diseases. If he would examine the records of incipient and moderately advanced patients who have followed the advice given them and note the gain in weight, lowering of temperature and pulse to normal, the gradual disappearance of active signs in the lungs, and general improvement on the dietetic-hygienic treatment alone, he could not help being optimistic.

Those who are deeply interested in tuberculosis take time to carefully instruct their patients how to live, impressing on them the importance of rest, fresh air and food, explaining how to prevent spreading the disease to their relatives, particularly the innocent little children. Being interested and on the look out, this class of practitioners make an early diagnosis and give the patient a much better chance for recovery. The difference in prognosis between an incipient and a moderately advanced case might be likened to the difference between extinguishing a lighted match and a house on fire.

You have often heard the rather irreverent expression, "God help the rich; the poor can take care of themselves." If the poor man has health, he can; but when he has tuberculosis, he not only cannot, as a rule, take care of himself and family—and usually he has a large family—but he is a burden on the community. Until he is carefully instructed he is a focus of infection for all in the house. Now the question arises, what are you going to do with your tuber-

culous case after you have made your diagnosis?

The advantages of being at home, so far as we can see them, are:

1. The pleasure of being among relatives.

2. Food to which they are accustomed and which they relish, and the fact that the palate may be catered to.

3. In actual cash they are cared for apparently more cheaply. This is more apparent than real. The charge at Catawba Sanatorium is only \$5.00 per week, less than half of the actual cost to the State. Many cases too poor to pay this amount can and are often kept there by lodges, churches, and friends.

What are the advantages of sending the patients to a sanatorium?

He is removed at once from his home and cannot further infect his family. The family is instructed to disinfect and clean up the house with plenty of hot water and soap, sunlight and fresh air; when possible the vacuum cleaner should supplant the broom. The rest of the family are impressed with the importance of keeping the body in good general health in order to avoid developing the disease. The family is impressed with the fact that sunlight and fresh air are the enemies of tuberculosis.

The patient is under constant medical supervision from the beginning, and is taught the seriousness of the disease and the importance of carrying out instructions, even in the minutest details.

He sees hundreds of others doing just what he is told to do, which makes it easier for him to get the habit. He hears the preaching and sees the practice. He also has warnings which are impressed on him by bad results following imprudence in other patients, or he is encouraged by good results following strict observance of rules by careful patients.

He must and can rest the mind, the body, and, to some extent, the lungs. Dr. Lawrason Brown recently said: "Had I to begin treatment to-day for tuberculosis, I would go to bed and remain there for two months, whether symptoms were present or not."

A large per cent. of bad results can be traced to some indiscretion or some act of over-exertion. When he rests, he sees the temperature and pulse curve gradually return to normal, or if he takes exercise when not ordered, he sees the curve jump up. He sees his weekly weight curve slowly rise, his cough lessen and he is encouraged.

He sees the fallacy of the claims of various quack medicine and so-called cures. Nearly all of the patients at one time or another have tried one or more of these without any good effect. Drugs are avoided as far as possible; however, in the more advanced cases the distressing cough calls for suitable palliative measures or remedies, and other symptoms are treated as they arise. When indicated, tuberculin is administered in very minute doses, and gradually increased.

Change of scene and climate, cooler atmosphere, sight of the trees and woods, all have their beneficial influence.

The apparently cured, or the arrested case, if he has good common sense—and it has been well said that the permanency of results depends more on how much trouble the patient has above the collar than below—goes home a missionary to spread the good tidings that, although tuberculosis is a communicable disease, it is preventable, and, best of all, curable if taken in time. He is a living example, known and read of all men.

Not long ago a patient before her departure from the sanatorium had made preparations to sleep out on her return home. In the small town where she lived she was the subject of much gossip and curiosity at first; she was supposed to be just a little queer. But as the winter wore away she did not have pleurisy or pneumonia, or even a bad cold, and did not die as the "wise acres" had predicted. As she still continues to take her rest in the open and her refreshing sleep in God's pure air, her critics begin to see that she is not so queer after all. The local newspaper mentioned from time to time that "our esteemed friend, Miss —, is still sleeping out." The result was the beginning of an interest in tuberculosis on the part of the more sensible citizens, and the establishment of a local branch of the Anti-Tuberculosis League. No doubt much good work has resulted. Just how far-reaching an example of this sort is no one can measure. This is only one instance.

In making up our report at Catawba Sanatorium we had letter after letter telling of the enthusiasm and interest in the work against tuberculosis among former patients, and of how much good they have received individually, and how thankful they are that they have learned how to prevent others from getting the disease,

and how to live and be contented and happy with it.

The objection that the sanatorium atmosphere is gloomy and depressing is without foundation. On the contrary, it is a well-known fact that consumptives are hopeful and optimistic. There is more or less an atmosphere of good cheer and good fellowship, and this is largely due to being among many fellow-patients.

In a recent article Dr. David Lyman said: "Patients are often received who have been sent with the positive assurance that they will be cured in a few months, sometimes a few weeks—this is cruel; too much is expected of the home and sanatorium treatment. The definition of 'cured,' as accepted by our National Society, is, no physical signs or symptoms for two years after return to work. It is necessary for our patients to understand that there is a possibility of relapse for two years after he is, to our minds, apparently well. We know tuberculosis can remain latent for a long period of time; we know, too, how difficult it is at times to discover by physical examination a slight lesion, or even a severe one if it be in the deeper portion of the lung.

"'Cured' means, to a *patient*, that he can be careless, and as it is difficult to decide when a patient is 'fully' cured, we should be careful of the use of that term."

THE UNDERLYING FACTORS OF THE LIQUOR HABIT.*

By CYRUS THOMPSON, M. D., Jacksonville, N. C.

We are prone to short-cut to happiness rather than to stand still and see the salvation of the Lord. Man loves happiness and hates misery; but his efforts to escape misery cause most of his unhappiness.

Somebody, for instance, has remarked how much of the misery of life is caused by the fear of death—the dying of preliminary deaths, if you please, since it may not be denied that who fears a thing suffers already the thing that he fears; when, as a matter of fact, dying is only once unavoidably necessary, and is then ordinarily a performance "dead easy" to accomplish. And, after all, dying is hardly so terrible as living, hardly so terrible as life with all its pleas-

*Read before the Seaboard Medical Association, at Newbern, N. C., December 3-5, 1912.

ures and all its sorrows. As an obscure, nameless, minor poet has sung:

"The burden of being, O love, is not death:
The burden of being is living—
But there's joy in living with love at each breath,
The having of love and the giving."

And yet the fear of death, of not living, of possible sickness, of uncertain bridges ahead of us—this cowardly fear, what a destroyer of life and of happiness it is! We go all our days in bondage through fear of death.

Right along with this as a source of human misery may be mentioned the fear of being alone. Eden is not Eden when you are by yourself. But a wilderness and companionship may be delightful.

"A book of verse underneath the bough,
A loaf of bread, a jug of wine, and thou
Beside me singing in the wilderness,
Ah, wilderness were paradise enow!"

Very early in the history of the race it was observed and remarked that it is not good for man to be alone—a feeling that moves the infant crying in the night, the man and the maid in the spring-time of life, the strong man in his prime, and all of us when the midday zest is gone and the shadows lengthen for evening's close. I look out upon the stars of the sky and am charmed to behold the glory of them, and how one star differeth from another star in glory, until I am staggered by the separateness of them forever! There is nothing else so terrible as this lonesomeness, this individualness, this loneliness of everything. To escape the terror of it, little cells federate into larger organisms; insects and birds flock together; beasts are gregarious; men congregate, group into families and communities, and desert the country and build cities for companionship. There is no other so strong craving of the human soul as the craving for congenial comradeship. So to the average man solitariness is hell, while even servitude in company is tolerable living. It requires an exceptionally strong nature to stand contented alone, to be independent, to feel sufficient in itself, to understand that "the kingdom is within you!"

The more we lack strength the greater our fear, and the more ready we are to attempt by any means to escape the loneliness and helplessness of ourselves.

To this sense of self-insufficiency we owe the best that we have in the world: our feeling of dependence is the parent of all our peace and progress; and from the same feeling of insufficiency comes much of the worst and most pitiable in human life.

fiency comes much of the worst and most pitiable in human life.

The fear of pain and the disagreeable, to make our escape or to find ready help before the bitter things and the burdens of life—these are the problems that confront, appall, entangle and wreck us. For help in our weakness we turn to various material and immaterial stimuli.

So the factors underlying the liquor habit, so far as the individual is concerned, are not different from those that underlie other addictions. The habits differ and their environments differ; but temperament and environment determine for each individual his form of intoxication.

It may be that your work, your friends, your children, your books and flowers suffice for you. Fortunate, indeed, is the man who can escape from himself and find strength in his work—the blesseddest gift of heaven. Work is the comforter of the strong man as play—child's work—lifts the terribleness of life from children. It is the continual savior of the aged. Did you never notice how industrious old people become, and how miserable when increasing age takes their work from them? Work has become their habit, it is their stimulant, and they die without it.

Another temperament without fortitude to suffer pain and be still, without health to enjoy what appeals to and satisfies the strong, seeks solace in some drug. So the weary of the day's toil, the depressed in spirit, the disappointed, the troubled without pain, and the convivial in his purposeless loneliness, seek victory o'er all the ills of life in inspiring, bold John Barleycorn. And if the will, the resultant of all conflicting emotions, forbids the use of patent nostrum, narcotic drug, or alcoholic drink, some simple faith, strong ideal, or sweet influence of religion may fill up the measure of another man's needs. So even the love of a woman may for a time hold a man from his drink:

"No! Saki—take the wine away!
I have no need of it to-day;
So drunk am I with adoration,
No longer have I any need
Of commonplace intoxication.
How should a man whose eyes may drink
Her beauty, like the Northern Star,
In a delicious meditation,
Remain contented any more.
With common wine out of a jar!
No, Saki—take the wine away."

But the underlying factors are the same in

every case; and the addiction, whatever the form of it, began in response to a sense of need. It grew with repeated effort to escape the disagreeable, the ready satisfying of your hunger, your feeling of insufficiency. And now your discontent is constantly recurrent, and you are bound by your intolerable longing; your discontent is a continual famine, a dry and thirsty land where no water is. You might have resisted the impulse at the first; but now your power to resist is perished through non-use of it. Your appetite, accustomed to satisfaction, like a spoilt child, is imperious now, and your habit is become your will, the veritable controlling part of you.

This appetite which leads to enslaving habit may be hereditary in the make-up of the individual, or it may be acquired by him; and, when acquired, it is primarily due to defective training, to neglect or mismanagement in childhood. Of course, you have seen families of hereditary drunkards—a weakness of will to stand alone and resist a temptation, the heritage of ancestry as much as any other physical or mental characteristic might be. But you have seen also drunkards come out of sober and sane ancestry, and sober men from ancestry given to drink. For the sober man may “spoil” his child in the raising—may pet him, humor his whims, or unreasonably provoke him, until he becomes, when grown up face to face with the world, unable to resist the temptation to relieve his depression and be rid of the disagreeable by the deceptive stimulus of alcoholics. And the man addicted to drink, on the contrary, may so teach his child to dismiss the disagreeable, to endure hardship, to acquire self-respect and self-control, that he becomes sufficient within himself without the aid of habit-forming stimulants.

So the hereditarily unstable may be educated in childhood to equilibrium and saving strength, and the emotionally stable, on the other hand, may be literally spoiled by faulty training—that is to say, robbed, pillaged, and plundered. In other words, the drunkard is made by his father or his grandfather, who may or may not have been given to drink—not consciously made, of course, but carelessly, criminally, and certainly, none the less. And sober men are made by right education in their childhood and youth.

I may be permitted to say in this connection that there is no more devouring sin in the land than this: that men and women mate and marry

and beget children, selfishly contenting themselves with the pleasures of matrimony while they neglect their parental obligations to their offspring and to society through them. When parents neglect the training of their children, their children come up not much better than illegitimate waifs, and such marriage is little better than fornication by consent of the law.

“The real solution of the liquor problem is seen to rest finally in the moral equipment of the individual.” Those, therefore, who proclaim prohibition as the remedy for the liquor habit have need to broaden their propaganda to include not only the abolition of the saloon, but the realization of the divine necessity of wise family government for the training and the making of strong, happy, sober men. For the inalienable duty incumbent upon parenthood is the rearing of children to happy living and good citizenship.

If legislation may do something by way of removing a certain form of temptation, vastly more may be done by the wise regulation of the child’s physical and psychic life, by the teaching of hygienic living for the making of strong bodies and self-respect for the making of strong souls.

Let us instill into the child courage and resolution, hardihood and high purpose, self-restraint and high ideals; teach these saving qualities into our children in their play (which is childhood’s work) and in their work and their play, when they are grown older. And, above all, teach them till they know it, that there is nothing dishonorable about honest, helpful work, but the failure to find it and to do it.

Action in accordance with these thoughts is increasingly imperative in face of the increasing stress of life in the busy industrialism of to-day and to-morrow.

In what other way can we prevent that state of feeling, that sort of insanity, hereditary or acquired, which impels to the liquor habit, and not less to other ruinous addictions and defective mental states?

Let us begin with the child and his environment as the great underlying factors of the liquor habit. The kingdom of Heaven, says Bouck White, is the kingdom of self-respect; and the kingdom must ever be within the man.

“At the risk of wounding adult susceptibilities, I must repeat that not much can be done for this generation in the way of changing the moral

bent of grown-up persons. The fate of the world is determined by the influences which prevail with the child from birth to seven years of age, certainly from birth to fourteen years of age. Such is substantially the unanimous judgment of living psychologists. All our problems go back to the child—corrupt politics, dishonesty, greed in commerce, war, anarchism, *drunkenness*, incompetence and criminality. We know now that much of our labor for the radical betterment of society is costly and fruitless. It is because we are working against nature. We take the twig after it is bent and has stiffened into a tree. We take the brook after it has become a torrent. We take the fire after it has become a conflagration. God is teaching us, in ways made costly by our ineptitude, *to begin at the beginning*, and to meet the demands of the situation by conforming to fundamental principles."

ARTIFICIAL FEEDING IN ITS RELATION TO INFANT MORTALITY.*

By EDGAR P. COPELAND, M. D., Washington, D. C.
Associate in Pediatrics, Medical Department, George Washington University.

In any division of the subject of infant mortality, the consideration of the roles of the various factors must of necessity overlap one another, and while there is a striking unanimity of opinion as regards the salient features, there will be in such overlapping certain differences of lesser importance. The more thought one gives to the subject the more apparent becomes the difficulty, if not the impossibility, of reckoning the influence of artificial feeding in infant mortality apart from such very closely associated subjects as infant hygiene and prenatal influences.

It seems advisable to further preface my remarks by defining just what is meant by artificial feeding. We are indebted to Schlossmann for the phrase, and by it mean the employment of a substitute for human milk in the feeding of the infant during the nursing or suckling period. The duration of the suckling period is variously regarded by authorities, but may approximately be said to be the first year of life.

That human milk is the most suitable food for the human infant is, I think, too well an es-

tablished fact to permit of argument. Therefore, a proper study of the inadequacy, if not the injurious effect, of artificial feeding should begin with an appreciation of the nursing's needs and the manner in which such needs are met by its natural food.

It has not been possible through means at present at our disposal to study infant nutrition as exactly as has been done in the adult, but much of inestimable value has been discovered. Investigation into the anatomy, physiology and bacteriology of the alimentary tract has shed light upon the questions of feeding, the causes for failure and the roads to success. The absence of teeth and the deficient salivary secretion indicate the necessity for liquid food. The small capacity of the stomach, its weak musculature and its feeble secretions suggest the relatively greater importance of the intestine in digestion and likewise a greater vulnerability to passage of bacterial infection. The relatively greater length of the intestine, the abundance of lymphoid tissue, the hypersusceptibility of its mucous membrane to injury, with again a weakened musculature, point at once to the needs of a rapidly growing organism and the facility with which it may be disturbed. Bacteriological investigation has demonstrated the presence of a profuse bacterial flora in the intestinal tract of the nursing so uniform in its varieties, that it must be considered an autochthonous vegetation. While the exact nature of their action is not understood, it is apparent that these intestinal organisms play an useful role in the processes of normal digestion and, further, that disturbances of this normal vegetation result in both acute and chronic disorders of digestion (Herter).

With the nursing the requirements of nutrition are best met and a proper development of the digestive tract best accomplished by the administration of mother's milk. In fact, the employment of any substitute during this period is a hazardous undertaking for the child—at least during the early months of its life, when it may very properly be considered a mammary foetus, a condition analogous to the extrauterine foetal existence of the implacentals.

In striking contrast to the conditions of substitute feeding, the nursing infant receives its food fresh and clean, and of a fairly constant composition, though it is observed that wide va-

*Read as a part of the Committee's Report on Infant Mortality before the Monday Night Club of Washington, D. C.

riations in the chemical content of human milk are well borne. By clean we mean that milk nursed directly from the breast is free from bacteria in general and the organisms of the specific infections in particular, so that it is not therefore subject to profound alteration through the influence of climatic conditions or degree of maternal intelligence. Without definitely understanding the questions involved, we are nevertheless aware that there exists in all milks a peculiar adaptation to the young of the same species. These questions are bio-chemic in their nature and have to do with various factors. According to Hamburger, the use of foreign proteins, that is to say, proteins from sources other than the human body, is followed by a specific tissue reaction much in the nature of a reaction to a poison that determines injury to the digestive cells. This is quite different in the adult where through acquired immunity foreign or heterologous proteins act as a digestive pabulum for the alimentary tract and are there converted into homologous proteins without injury to the functioning cells. In further considering the proteins, it is interesting to note that homologous protein may act as a conveyer of antitoxin from mother to child (Salge), and that the serum of breast fed infants possesses higher bactericidal powers than that of the artificially fed (Moro). More attention has been recently given to the essential role of the inorganic salts in the nutrition of the newborn and the harmful effects that follow their ingestion in excess as well as insufficiency. We are not at the present time in possession of sufficient knowledge concerning the action of the ferments in milk to properly place their importance, though it cannot be denied that they contribute to its utilization.

With a very liberal allowance for error, the following statistics will show very conclusively the greater mortality attendant upon substitute feeding in the first year of life. Boeckh, Director of the Berlin statistical department, informs us that the mortality is twenty times greater with artificial than with breast fed. In Munich, in 1903, the mortality among the former was 83 per cent.; in Paris 43 per cent. among the artificially fed, 18.2 per cent. among the breast fed (Hery). Holt recently collected 3,000 cases of gastro-intestinal disease, of which number but 3 were exclusively breast fed. Griffith quotes recent Berlin statistics showing an aver-

age mortality of 97 per cent. among artificially fed over a period of five years. The same author reports an observation of 617 children: In 388 breast fed from 64 families there were 77 deaths or 19.8 per cent.; in 229 bottle fed in 33 families there were 99 deaths or 43.2 per cent.; and the further interesting fact was noted that of the 64 families in which there had been exclusive breast feeding 24 had sustained no loss, whereas not one of the 33 families using substitute feeding had escaped the loss of at least one child.

The following tables compiled by Westergaard are reproduced from Pfandler and Schlossmann because of their instructive value:

TABLE NO. 1.

| Age | Breast Milk | Cow's Milk | Age | Breast Milk | Cow's Milk |
|------------------|-------------|------------|-----------|-------------|------------|
| 0 month | 201 | 1120 | 6 months | 26 | 277 |
| 1 month | 74 | 588 | 7 months | 24 | 241 |
| 2 months | 46 | 497 | 8 months | 20 | 213 |
| 3 months | 37 | 465 | 9 months | 30 | 191 |
| 4 months | 26 | 376 | 10 months | 31 | 168 |
| 5 months | 26 | 311 | 11 months | 39 | 147 |

TABLE NO. 2.

| Age | Breast Milk | Cow's Milk | Milk substitutes whether or not combined with breast milk or cow's milk. |
|--------------------------|-------------|------------|--|
| 0 to 1 month | 10 | 32 | 38 |
| 1 to 2 months | 23 | 52 | 62 |
| 2 to 3 months | 29 | 52 | 56 |
| 3 to 6 months | 26 | 50 | 59 |
| 6 to 9 months | 18 | 42 | 56 |
| 9 to 12 months | 13 | 30 | 39 |
| 12 to 2 years | 17 | 43 | 53 |

While the higher mortality among the artificially fed seems an established fact, it is hardly fair to attribute the difference entirely to the substitute food, since in many instances the causes operating to deprive the infant of breast milk act also as prenatal influences to determine the birth of a physical weakling that would thrive with difficulty under the most favorable conditions. These observations are strikingly illustrated in illegitimate offspring and other classes where conditions during the puerperium are unfavorable.

Of all infants dying within the first year, 28 per cent. according to Holt, 33 per cent. according to statistics from Hamburg and Berlin, 1897 to 1901, succumb to gastro-intestinal disease, which facts, considered in connection with reports by Holt previously mentioned, lead us to the inevitable conclusion that for practical

purposes gastro-intestinal disease is the main factor in mortality in the first year of life and that, furthermore, artificial feeding is in some way largely responsible for this mortality.

The study of this relation of artificial feeding to infant mortality resolves itself into a consideration of the shortcomings of cow's milk owing to the fact that in all countries from which reliable data may be had, it is accepted as the substitute best suited to needs. Lack of general knowledge concerning child hygiene and the correct methods of using cow's milk are of first importance as causes of failure, though it must be admitted that under no circumstances can such milk be perfectly adapted to the requirements of an human infant. In no way does the infant more forcefully assert its individuality than in its reaction to such attempts.

The causes for failure in the use of cow's milk may be classified under three headings:

1. Ignorance concerning cow's milk and the nutritional requirements of early life.
2. Failure of utilization of food, either as a whole or in part.
3. Contamination of milk (a) bacterial; (b) with poisonous or irritative substances resulting from faulty feeding of cattle.

Haphazard methods in feeding of cow's milk have contributed to mortality mainly through overfeeding and more rarely deficient feeding. While breast fed infants are observed to tolerate a wide range of variation in strength of the essential constituents of their food, the hand fed baby often manifests the most eccentric reactions to the slightest changes. It must be borne in mind that we are considering the average infant and not the occasional one that would appear to thrive in spite of its food. Keller tells us that the smallest quantity of food upon which the infant thrives is best.¹ Certainly modern teaching has done much toward enabling us to recognize faulty nutrition and has armed us with knowledge assisting in its correction. Pisek, in a recent address before the New York Academy of Medicine on *The Influence of Milk-Station Work on the Reduction of Infant Mortality*, said that, "The milk station is no longer primarily designed for the distribution of milk; the education of the mother has come to the front and the doctor and the nurse are the more

important factors. The intimate contact of the visiting nurse with the mother allows her to teach the mother how to modify milk in her own home according to the doctor's instructions as to the infant's individual needs. In these stations the whole milk with simple dilutions with gruel and the addition of ordinary cane sugar was found to serve the purpose so well that this became the rule. The milk used was an excellent *raw* product and was preserved from deterioration in the home by inexpensive homemade refrigerators."²

Coming from an authority and from a city leading all others, at least in this country, in the development of the *gouttes de lait*, it points conclusively to the value of the diffusion of knowledge, and while not presented as an argument against partial sterilization, at least gives clean raw milk an equal consideration.

The second factor, namely, the failure of utilization of food, is most difficult, since it has to do with questions in the physiology of digestion concerning which we have no very exact knowledge. Previous mention has been made of the reaction of the alimentary tract and the tissues in general in early life to the foreign proteid of cow's milk and the possibility of damage resulting thereby. It has been long recognized, though empirically treated, that in the beginning of cow's milk feeding at whatever age, it was necessary to slowly accustom the infant to the foreign food, oftentimes at the temporary expense of nutrition. Schlossmann has resorted to the injection of cow's serum in an endeavor to immunize against such foreign protein.

In the modification of cow's milk to meet the digestive capacities of various children, grave nutritional disorders are occasionally due to variations in the inorganic salt content. Most dilutions, for instance, reducing the higher proportions of these substances too markedly, impoverish the salts of iron and potassium with resulting anemia. Infant mortality tables do not fully inform us as to the baneful effects of substitute feeding, many of which are expressed in the weaklings that survive infancy only to perish later in childhood. The inorganic salts in excess readily neutralize the slight acidity of the gastric secretions, thus removing the only

1. Infant Mortality and Infant Feeding, *Deutsch Klinik*, Berlin, 1909, XII, 589.

2. Godfrey R. Pisek, *Transactions New York Academy Medicine*, meeting October 6, 1911.

barrier to the bacterial contamination, if not infection, of an intestinal tract already at the most tremendous disadvantage.

Part of that perfect adaptation observed to exist between milks and the young of the same species is no doubt the result of the peculiar properties possessed by such milks of exciting the secretion of the digestive juices, and to some extent also the normal ferments of these milks. Thus may we perhaps partly explain better results of mixed feeding, the *allaitment mixte* of the French.

As having a most important bearing on the utilization of foods, if not indeed the injurious effects of heterologous food elements, the third column of table two is, to my mind, particularly significant. The results from the employment of various substitute foods, either with or without cow's milk, are less favorable than when the milk is used exclusively. These results are due not only to the failure of utilization, but also to the definitely harmful influence of certain starches and sugars present in most substitutes in great excess, and characterized by Czerny and Keller "starch injuries" and "sugar injuries". Without any intention of minimizing the dangers of bacterially contaminated milk, I desire to emphasize the importance of these factors that may, in our enthusiasm over clean milk, escape our attention.

We now come to a consideration of the influence of bacterial contamination of milk in the causation of infant mortality. It requires a rather vivid imagination to attribute even occasional digestive disorder in the breast fed to organisms normally present in the ducts of the human mammary glands, mentioned by both Moro and von Rosthorn, when we remember the great opportunities for mouth infection from other sources, but one can readily conceive of the dangers of bacterial ingestion against which the infant has had no chance of acquiring immunity. The marked leucocytosis following the introduction of cow's milk into the alimentary tract as contrasted with the leucopenia after human milk is significant. Purity in milk is essential if success is to follow its use as a substitute in infant feeding. By purity I mean initial purity, for dirty milk cannot be purified by any processes at present at our disposal, and methods of sterilization, at best incomplete, do not remove the menace of poisons from dead

bacteria only less dangerous than the living organisms themselves. Startling as it may seem to many, such authorities as Czerny, Flugge, and R. Fischl are unanimously agreed that the introduction and improvement of methods of milk sterilization have no noticeable influence upon infant mortality. This assertion is not, I believe, intended as an argument against the value of clean milk.

According to S. Josephine Baker, Director of Child Hygiene in the New York Department of Health, "The relative value of raw pasteurized milk for infant feeding still seems to be an open question. *Purification cannot take the place of purity*, but the matter is economic and purity seems beyond our reach at the price we can pay."³ The experience of Pisek with clean raw milk in the same city would suggest that enough clean milk for infant feeding is impossible. In at least so far as the infant's needs are concerned it seems not too idealistic to try for pure milk, relatively free from all bacterial growth and from the organisms of the specific diseases in particular in the beginning, and so maintained by constant low temperature for the shortest possible time before its consumption. Present day pasteurization as commercially applied is of greater moment to the milk merchant than to the infant, since it permits the marketing of products that many times could not possibly remain fresh long enough to be sold.

Depending upon the presence or absence of disease in the cow, the cleanliness exercised in milking and the after-care of milk, the method of preservation and the length of time elapsing before utilization, cow's milk is bacterially contaminated to a greater or lesser degree.

Such contamination may be expressed in the infant by the contraction of specific disease, tuberculosis, typhoid, and, we believe, scarlatina and diphtheria. In addition there may be a host of indefinite manifestations due to the presence of different strains of streptococci. Apart from these organisms that we really may term accidental invaders, we must consider the toxins and poisonous protoplasm of the usual invaders and, finally, the effect of their activities upon the milk itself.

Leaving out of consideration the organisms of definite disease, we can never be quite cer-

3. S. Josephine Baker, *Principles of the Reduction of Infant Mortality*, etc., see 2.

tain, owing to the great differences in the reaction of various infants, as to just what bacterial content will be borne without disturbance.

Milk is a culture medium favorable to the growth of most bacteria, and statistics would seem to show an increase in mortality in hand fed infants during the heated months, coincident with, if not dependent upon, the increased difficulty in maintaining clean milk at such time. While one cannot help but be impressed with this coincidence, it is important that we do not lose sight of the other shortcomings of cow's milk that add to the embarrassment caused by heat and more especially humidity. It is a matter of common knowledge that overfeeding even with clean milk may be disastrous in the summer months. It is, in my judgment, a most significant fact that the use of other substitute foods, either with or without cow's milk, is attended with a higher mortality than the use of cow's milk alone. This fact has been brought out before, but is here repeated to emphasize the statement that the bacterial contamination of the milk is only one of the problems presented for solution.

In an attempt to solve this problem of infected milk, enthusiasts have waxed strong in their advocacy of various methods of so called sterilization, more particularly pasteurization. It has been abundantly proven that the heating of milk to temperatures over 150° F. for any length of time results not only in a lower bacterial count, but also in physical changes that render the difficulties of its digestion, already great, greater. It is, however, rather with what pasteurization does not do than with what it does that I would take issue. Even boiling for ordinary lengths of time does not sterilize, but pasteurization only controls the growth of acidifying bacteria, ordinarily harmless, while not materially affecting spore forming proteolytic organisms that readily bring about the putrefaction of milk and that grow with greater facility in the absence of acidifiers. The streptococci, one of the most dangerous organisms found in dirty milk, is not killed by true pasteurization. When I say true pasteurization it is rather hard to define just what it means. It is usually the heating to a temperature sufficiently high to determine a low count, anywhere from 140° F. to boiling. Not a great while ago in the Strauss milk station here, I detected

in sampling the milk a distinct cooked taste and was told upon inquiry that it had been heated to 160° F. that day. I would not wish to feel that I was employing milk contaminated with tuberculous or typhoid bacilli for infant feeding even though it had been boiled. When milk cannot be had free from the organisms of disease and reasonably free from the bacterial growths in general, one must choose the lesser of two evils and come as near to sterilization as possible; in other words, boil. Of course the employment of boiled milk cannot be continued over an indefinite length of time, but much so called pasteurization has all of the disadvantages of boiling without its benefits. And, finally, it is to be remembered that the protoplasm of most of the bacteria found in milk is definitely poisonous, be the organism living or dead.

Only a few words need be said of the contamination of milk with irritative and poisonous substances resulting from food taken by cows. Czerny and Keller point to the occasional presence of poisons in milk resulting from the ingestion of poisonous plants, citing the alkaloid colchicine as an occasional offender. In the milk of cows fed upon certain foodstuffs, such as brewer's grains, potato peelings, turnip tops, etc., there are irritative substances that not infrequently cause marked digestive disorders.

In conclusion, it may be said that as yet we have not been successful in providing for the infant any substitute food to satisfactorily take the place of human milk during the period when the child is normally dependent upon its mother for sustenance. Nor can we ever hope to find such a substitute. Given a good milk supply, a proper knowledge of the subject of infant feeding and an infant not too greatly handicapped by unfavorable prenatal influences, and a fair measure of success is assured.

Clean milk in itself accomplishes a great deal, but the best can never be had until the means at our disposal enable us to supply the individual child its own needs.

And, finally, we must guard against hasty conclusion. As a result of activities concerning which we know nothing and over which we can exert no control, the mortality rates of different years vary from time to time, now high, then again low. To determine with certainty the influence of any factor, prophylactic or otherwise, it is necessary that its action be carefully ob-

served in a large number of cases over a considerable length of time. No one line of endeavor, however enthusiastic its advocates, can speed us far toward the goal of our striving, and infant mortality is only to be lowered by serious and concerted effort in all of the many fields of endeavor bearing upon this most vital of questions.

The Rockingham.

REGULATION OF PROSTITUTION IN THE CITY OF NORFOLK, VIRGINIA.*

By FRANK H. HANCOCK, M. D., Norfolk, Va.

It has been mistakenly believed that prostitution has always existed. It is a product of civilization, and owes its birth and breeding to the artificial barriers society has erected between man and his natural impulses, or his instincts.

It exists in a systematic form in every civilization. There have always been women who temporarily sell their sexual favors to various persons, or, as Wharton's Law Lexicon has it, "women who indiscriminately consort with men for hire", women who give themselves to the first comer in return for a pecuniary consideration.

Prostitution has arisen in every society where early marriage is difficult, and is promiscuous where intercourse is socially disapproved.

The repression of sexual intimacies outside of marriage is a phenomenon of civilization, and just in proportion as that repression has been insisted upon, the institution of venal women set apart to habitually gratify the lust of persons has flourished.

We may assent with Havelock Ellis to the general principle laid down by Schurtz, that "whenever the free union of young people is impeded under conditions in which early marriage is also difficult, prostitution must certainly arise."

It was a religious institution in the early days. Certain women were set apart to dedicate themselves, temporarily in most cases, to the Goddesses of Fertility, Aphrodite, Ashur, and Mylitta, the Babylonian Venus, in whose temple these ministrations were performed, and where they especially supplied the immediate wants of travelers from other parts of the

world, whose needs were thus definitely recognized.

Such women were under the protection of the goddesses they served, and their prayers were regarded as highly efficacious in times of national calamity, as related by Athenaeus, in the case of the importance attached to the prayers of the Corinthian prostitutes.

Sociologically speaking, this was a religiously preserved survival of a greater sexual freedom formerly existing, that had now become a specialized and ritualized development of that primitive cult that worshipped the Generative Forces of Nature, believing that all natural fruitfulness was associated with, and promoted by, acts of sexual intercourse, which thus acquired a religious significance.

The woman offered her body as a propitiation to the Goddess, and the benefit sought was for the worshipper herself, as in any other form of worship where the benefit sought is for one's self.

The rational development of this position upon the part of the woman supplicant was the utilitarian side, and so later we have the prostitute offering herself for money.

It may be of interest to you in Norfolk to know that these prostitution temples flourished chiefly in *sea-coast towns*, where sailors and strangers came; and this brings us nearer home.

The Babylonian woman had gone to the Temple of Mylitta to fulfill a personal religious duty; the Corinthian priestess had begun to act as an avowed minister to the sexual needs of men in strange cities.

First, the women took the money given by strangers to the altars; afterwards, shortly afterwards, they began to put it in their trunks, to be used as a marriage portion, and later still they put it in their stockings to be used in any way they chose, as at present.

The cravings born of the growth of civilization, together with the decay of religious prostitution, combined to bring about the secular establishment as it is in our time.

The first public brothel is attributed by legend to Solon, "to safeguard the virtue of the general population, and to increase the public revenue."

With that institution the evolution of prostitution was complete; the sanctity of sexual intercourse in the divine service was lost. Civilization condemned free unions, but wherever civilization has gone, prostitution has followed. The

*Read before the third annual meeting of the Virginia Public Health Association, at Norfolk, October 23, 1912.

English carried prostitution to India, and to Burmah. "It is not the fault of the English," said a Brahmin; "it is the fault of their civilization."

Then began that long and fearful persecution of prostitutes by the Christian Kings, models of virtue themselves, of course.

The Emperors, Theodosius, Valentinian and Justinian, condemned brothels and exiled prostitutes, enactments that were repeated time and again during a thousand years in Europe, but all to no purpose.

Such efforts were, and always have been, and always will be, fruitless. Louis IX tried in every way to rid France of prostitutes in the thirteenth century, as did subsequent rulers, but in no country on the earth has prostitution played a more conspicuous part than in France.

Venice ruled severely against it, and became in consequence the paradise of the prostitute. "A Chastity Commission" under Maria Theresa, at Vienna, in the eighteenth century, set out to abolish brothels, and to do away with fornications. More serious evils resulted than the Commission attempted to cure, illegitimacy becoming more prevalent in Vienna than in any capitol of Europe.

This was the last attempt to uproot prostitution, except in sporadic instances. A semi-official toleration succeeded, such as we witness to-day. Then came regulation and medical inspection, with varied results. It has been adopted, abandoned, and readopted all over Europe and America.

Certain hectic persons, with bleared eyes, have always been able to see that frightful things would follow the regulation of prostitution, and they have kept the adventurous medical profession from dealing directly with the diseases that have arisen within these Chinese walls. Moralists, in whom virtue has been especially reposed, considering that all government was really vested in them, have exhibited the most curious prudery, to speak gently, and we might continue to fence with them were it not that more serious duties devolve upon us, whose final triumph will be to have emancipated the world from disease. We cannot therefore afford to leave these breeding places of syphilis and gonorrhœa, contenting ourselves with the treatment of sporadic cases occurring in the male population; we must seek their sources and crush them there.

Enlightenment spreading over the world is gradually unfettering the minds of men, and we have now glimmerings of reason in the public conscience, that curious composition that has always been so opposed to innovation, that has had to be dragged along by the neck as any other inert mass might be, by the adventurous spirits in medicine.

Semmelweis lost his position in the Hospital of Vienna for discovering the cause of puerperal fever, and Priestly knew too much about oxygen, nitrogen, air and water, to suit the cleric mind of his day, and they vetoed his going with Cook on his voyage around the world. Vesalius escaped the fires of the Inquisition, only to drown in the waters of the Mediterranean, and Servetus' sublime agony must not yet have faded from him, so frightfully did they torture him.

However, enlightenment has finally come, and we are ready to attack this, the last citadel of superstition, so far as disease is concerned.

It is written in ancient medicine that the people of the Bronze and Iron ages required surgeons to operate with stone instruments that had come from generations before. This was conservatism clinging to tradition, as it has done all down the centuries. Man is by nature opposed to change. It is this adherence to superannuated symbols that adventurous spirits in science have smote at, perforated and rent into shreds. They would have tethered us to empty pageants. Imagination saved us from suffocation. These pious ones always believed that the *golden age* was in the past, and they struggled for it; we, that it was before us, and we died for it. Medical men have been consumed like moths for this faith, and there are more of us yet to be singed.

It can be readily understood that this contemplated defiance of public opinion was viewed with some trepidation by the Health Commissioner of the city of Norfolk, and it was necessary for him to go into a series of conferences with those in whom are reposed the public morals, and to convince them, by rational argument, of the prime necessity of interfering with this protected vice. He was sufficiently adroit to accomplish his purpose, and we have thus travelled an harmonious course.

We were not unaware that in certain cities of Europe where regulation had been attempted, there had been more or less of failure connected with it, and we considered our procedure a

hazardous one and likely to fail, even though we did have the consent of many leading citizens and of the civil authorities. However, the Health Commissioner possessed little of that despairing fatalism that has interfered with the success of many great movements of this and other times, and he proceeded to attack those diseases that come directly from the prostitute, and are in turn recommunicated by her paramour,—diseases that heretofore have been undetected and undeterred by a single intelligent influence.

The segregation of the prostitute has been so complete that she has lost all contact with human life, except through her professional relations. It has been forgotten that she is a woman. Her intelligence and her ideas of sanitation are those of the Dark Ages. The Australian bushman, the Breton peasant, and the Neolithic man do not surpass her in stolidity.

The arrest of her mental development through the influence of this segregated life has been astounding. And yet society proposes to leave to these children to decide whether or not they are diseased, whether they shall stand for the public service, pressed as they often are by penury and want; driven by their overlords, the mistresses of these establishments, to do what is physically repulsive, and often painful. Illiterate, feeble-minded, 90 per cent. of them morons, they have yet become the judges in these matters, society refusing to have anything to do with them, saying that recognition would be entirely pernicious, and not atoned for by the benefits accruing from the checking of gonorrhœa and syphilis.

Did you think that such sophistry existed in the twentieth century? When you try the regulation of prostitution in your own city, you will find out. For my own part, I hope to see it adopted in some form in every city, and I believe that the amelioration of the hard lot of this "eternal priestess blasted for the sins of the people" is near at hand. I believe that recreation will be afforded her, places of rest from the turbulence and passions of men, soothing atmospheres, gentle surroundings, considerate treatment, education, all the benefits that kindness and humanity can suggest—that an intelligent sympathy will take the place of the cold disdain, hauteur, and contempt felt for her in the past.

Dr. Schenck instructed his assistants espe-

cially to carry the news of modern sanitation into these long-neglected places, to teach them the value of sunshine and fresh air, to teach them that comforts in here in the practices of the twentieth century; that the germs of tuberculosis, pneumonia, and other contagious diseases, so terribly fatal with them, find their most suitable media in the dense and stifling atmosphere of their rooms; in the folds of the heavy portieres and deep carpets of which they are so fond; serving not only to prevent the egress of sound as intended, but also to prevent that interchange of gases which is essential to health.

The details of this plan of the "Control and Regulation of Prostitution in the City of Norfolk, Virginia," were conceived and definitely formulated by Dr. Schenck himself, who is present and will explain them.

408 *Duke Street*.

SYPHILIS AND ITS TREATMENT, WITH FURTHER REPORT OF CASES TREATED WITH "606".*

By M. C. SYCLE, M. D., Richmond, Va.

A large percentage of syphilitics are cured if properly cared for. It is quite true that syphilis itself is not a fatal disease, but it is certainly true that it does shorten life and its many complications show a great increase in the death rate. Experience demonstrates that a considerable number of patients are improperly treated, thus leading to the development of serious after results, which in nearly all cases prove to be fatal. It is a disease whose unfortunate influence may extend to the innocent as well as the guilty, and is seen in high society as well as in the lower classes.

Experience does not show that this disease is less frequent at the present date than in former years, even though there are many new discoveries for its cure. If you will go to your city hall and look to see how many death certificates are signed "cause of death as the result of syphilis," you will be greatly surprised to notice so few certificates signed as a result of this dread disease, but you will note many deaths as a result of tabes, locomotor ataxia, scirrhus, paralysis, insanity, aneurism, cerebral hemorrhage, meningitis and sclerosis.

If we had carefully looked into the history

*Read before the forty-third annual meeting of the Medical Society of Virginia, at Norfolk, October 23-25, 1912.

of these cases we would have found the indirect cause was due to syphilis.

What can be done to lessen the spread of this disease? We cannot hope to stamp out prostitution, for this evil has existed since the beginning of history. The prostitute is the product of immorality, but not the cause. If we should try to stamp out the prostitute, we would have many more evils to deal with, such as rape, and especially masturbation.

I do believe that this Society should insist that the medical inspection of the prostitute should take place in the State of Virginia and all houses of ill-fame should be licensed. In this way we would certainly diminish the widespread of venereal disease. I trust that this Society will enlighten the Legislature of Virginia, so that appropriate laws can be made for the protection of our people.

Venereal disease is one of the most serious to the public health, and no less energetic measures should be taken to stamp it out than are employed to check the ravages of other serious infectious diseases. These diseases, apart from all else, impair the industrial efficiency of the individual, and increase the chance of his becoming a burden upon society.

It is the duty of a community to do everything in its power to clear itself of venereal diseases. I also believe in protecting an innocent woman from syphilis by marriage; the male sex should have a certificate of a clean bill of health. A physician's certificate should be required, testifying that he has examined the person and the latter is free from infectious venereal diseases. If such a law was passed a great number of infections would be prevented. One cannot make a man moral by laws of the State, but the State is continually working to maintain the health of our citizens; therefore, it becomes the duty of the State to protect the public in every way. Every physician should instruct his patient as to the dangers of this disease and the precautions he should take just the same as with a patient suffering with tuberculosis, especially as to his linens and drinking cups, as well as the use of other toilet articles. It has been my custom in private practice to have a printed list of instructions. The public drinking cup should certainly be abolished in all public places, such as railroad stations, trains, theatres and hotels, also public parks. I am at the present time treating an innocent girl who contracted this

disease from a drinking cup in one of our public parks. Many authorities have found the spirochetes of syphilis upon the rims of glasses previously used by syphilitics with mucous patches. Gastou, the French author, was the first one to make this discovery.

This is certainly a most delicate question to dwell upon, but I trust that the Legislature will try and make such laws, and with aid of the Board of Health and the general practitioner these laws will be carried out to the fullest extent, thereby lessening the spread of venereal diseases.

TREATMENT OF SYPHILIS.

In regard to treatment, there are various methods, and the question of treatment must rely not upon the text-book, but upon the action of certain drugs to which our patients respond most favorably in bringing on a cure.

Many physicians rely on Ehrlich's new discovery, that one single injection will bring about a permanent cure. I consider it impossible, and such a treatment should not be given unless followed up by the old method of treatment of giving iodides of mercury. Especially is this true, as we can safely say that "606," or salvarsan, is still in its experimental stage; if future study proves that the disappearance of the spirochete is permanent by a single injection of this wonderful drug, then a great step will have been taken not only in the cure, but also in the preventing of the spread of syphilis.

"606" will undoubtedly relieve all symptoms, and for this one reason it should be used, as no harm can be done. I am reporting to you several cases to show its marvelous effect upon the tertiary symptoms, but it did not show, as stated above, a positive cure in any case, except those followed by the old method of treatment. I have now under my observation a patient to whom I have given six injections since January 1, 1911, and this case still shows a strong positive Wassermann test. In conclusion, I beg to cite the following cases:

Case 1.—Mr. S., who was under specific treatment for one year. At this time a Wassermann test was made by Dr. Shepherd and found positive. On June 8th, the patient entered the Memorial Hospital, and was injected by the intragluteal route. This patient remained at the hospital one week, during which time he showed no ill effect of the injection with exception of

slight pain at seat of injection. A Wassermann test was made before leaving the hospital and found negative. About twelve days afterwards I was called to see this patient and found him suffering with intense pain, radiating from seat of injection to both ankle joints. There was also intense burning, swelling, discoloration, pain in the eyes, nausea, vomiting, diarrhea, and the temperature running to 104 mark. My first impression was that he was suffering from arsenic poison and a gluteal abscess. I remained with the patient a short while, getting ready to open what I thought was an abscess, but within a few hours all of these alarming symptoms disappeared. The patient was again comfortable with a normal temperature. Dr. Baughman was called in with me on the following morning to see this patient. We both agreed that all of these alarming symptoms were nothing more than a delayed reaction of the salvarsan or "606."

FLAT, GLISTENING PAPULES ON THE FOREHEAD
AND FACE.

Case 2.—Mr. H. F., 34 years old, street car conductor; was treated by me October 10, 1911. The forehead of this patient presents irregular patches of red and a few papules slightly raised above the level of the skin. There was narrow circle of red at the periphery of the papule; the center showed a brown discoloration, while the epidermis in the intermediate zone had tense and faintly glistening appearance. There were other symptoms, as maculo-papular syphilides on the trunk, moist papules on the hand, and also of the penis. This patient was injected by the vein, and within a few days all of these symptoms disappeared, the skin becoming clear and healthy in look; but still there showed a positive test.

SYPHILITIC PAPULES DISTRIBUTED OVER THE
ENTIRE BODY.

Case 3.—This case was referred to me by Dr. James P. Roy. Mr. W. N., age 30. The skin of the entire body was of a brownish hue and covered with copper-colored nodules. The eruption was situated mostly at the sides of the thorax and abdomen, and on the flexor surfaces of the extremities. Most of these papules already showed a whitish discoloration of the epidermis. All of the lymphatics were very much enlarged. On the dorsal aspect of the neck of the penis

was a livid sclerosis, surrounded by a great deal of induration. The mucous membranes of the feet and hands were also infected. A few papules were seen on the face and at the roots of the hair. The scalp showed slight seborrhea, but no papules. In this case, after three injections of salvarsan, all of these alarming symptoms disappeared, but still it showed a positive Wassermann.

Case 4.—Mr. K., age 40, referred to me by Dr. M. D. Hoge, with ulcerous syphilides, rupia on the face, a destructive gummy ulceration in the posterior walls of the pharynx, a great swelling of the ankle joints, severe periostitis, unable to sleep at night, loss of weight and appetite. This patient was injected on November 20, 1910. Before the injection, a Wassermann test was made and found positive by Dr. Nordeman, of New York. Three hours after the injection the previous pains had left, although the patient was most comfortable, having a rapid pulse, temperature running to 104 mark, respiration greatly depressed, yet at the end of the second week there was marked improvement. The scars about his face had greatly diminished in size, the ankle joint had become normal, and the despondent expression had entirely disappeared. In December a second Wassermann was made and found negative. This was the first case that I had injected and was reported by me to the Richmond Academy of Medicine, December 13, 1910, as a complete cure. A third Wassermann was made by Dr. Shepherd at the Memorial Hospital in January, with a strong positive, but all symptoms had greatly improved.

Case 5.—This patient was previously under the care of Dr. Vinson, of Huntington, W. Va., and in this case Dr. Vinson was able to demonstrate the spirochete. He accordingly put the patient on iodides and mercury. A Wassermann was made by Dr. W. A. Shepherd and found negative. This treatment was discontinued for one month and a second test was made, showing a strong positive, with all alarming symptoms; especially was there great alopecia. This patient was then injected by the intragluteal route, and three weeks later showed a negative with a disappearance of all symptoms.

Case 6.—Mr. S., age —. Referred by Dr. C. W. P. Brock, showed only copper colored spots on his chest and face, but complained greatly of losing weight and often with intense

headache. This patient had no knowledge of being infected with syphilis until he was made to undergo an examination by the police board of Richmond. A positive Wassermann was found by Drs. Hopkins and Shepherd. He was injected by the intragluteal route with marked improvement.

104 1-2 West Grace Street.

SIGNIFICANCE OF HEREDITY.*

By ALFRED G. MAYER, Ph. D., Maplewood, N. J.

Since Elizabethan times until within a year ago, when the old age pension law was enacted, England has maintained her poorhouses, where imbeciles are bred and fostered, until to-day the rising tide of the unemployable threatens to overthrow the body politic, and one in thirty of the population is registered as a pauper.

Here in America a very similar code of poor-laws has begun its work of fostering and multiplying this misery which civilization has always borne as a yoke upon its shoulders. Imbecile and epileptic families are being bred in *our own* poorhouses to-day, and children are daily born within such institutions, despite the fact that science has indicated that if both parents be imbecile or epileptic all the children must be similarly cursed. Moreover, our schools and refuges for the mentally unsound are daily turning out upon the world persons who are destined to become the fathers and mothers of a generation of degenerates, paupers or criminals.

As an individual, isolated and prevented by segregation or sterilization from perpetuating his like, the imbecile is truly an object to inspire compassion, but if this solicitude takes the form of encouraging him to become the father of a family, we make of him a monster of terrible import, a curse to the yet unborn. And yet, granting the omnipotence of heredity, we are more than mere machines born to unwind as heredity directs throughout our lives.

This new discovery, the law of Mendelian heredity, if it shows us one thing, teaches us to be *truly* merciful and, apart from superstition, false sentiment or false tradition, to do those things in the present which will insure a greater happiness to generations yet unborn.

It is a vast field of labor so all-encompassing that our keenest students have as yet but scanned its surface. There is room for each and every one of us—the settlement worker, the earnest minister, the schoolmaster and the physician—all laboring now under the direction of a trustworthy principle, and guided by *facts*, where hitherto all was vague and undetermined.

Our fathers lacked this knowledge, the comprehension of which is now the truest bond linking religion to science through the love of man for man. Yet heredity provides only the raw material, which may or may not develop into the full fruition demanded by civilization. Great leaders usually arise only under the stress of stern necessity, the stirring of national emotion, or the struggle to overcome the rule of tyranny and prejudice. Genius can surmount any obstacle save the greatest one of all—the absence of incentive to achieve.

The men who crushed the tyrant Spaniard gave us Holland's golden period of art, philosophy and science. Those who rose against the evils of slavery came as blossoms upon the gnarled old tree of Puritanism. Stirred by the spirit of their times, we saw the men of the Elizabethan epoch in literature, and the Victorian era in science. Such flashes of national brilliancy are always transient, for their very success is their undoing.

New England to-day is full of men of fine but unstirred minds, but their cousins are still conspicuous as leaders in our Middle West, where the call of unsatisfied ambition still is heard.

There is, I think, all too much truth in Gray's simple lines:

"Some mute inglorious Milton here may rest;
Some Cromwell guiltless of his country's blood."

Heredity, be it ever so potent, is but a potential thing giving us in each generation the material which the stress of high incentive may develop into leadership. Thus, I have little sympathy with the view that men of worth were innately destined so to be and deserve no credit for their achievement. More pernicious still is the doctrine that criminals, being born to low ideals, are not responsible for their crime.

Granted that the influence of heredity is fundamental, all-pervading and constantly present, and that environmental things are of lesser importance, yet they are by no means to be

*Read before the American Association for Study and Prevention of Infant Mortality at the annual meeting in Cleveland, October, 1912.

neglected, and this new science of eugenics will fail in its duty to mankind if it neglects to call attention to the fact that the best can be achieved only when training comes to stir the spark of heredity into the flame of action.

Proceedings of Societies, Etc.

MEDICAL AND SURGICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

Reported by LOUIS C. ECKER, M. D.

At a meeting of this Society held October 3, 1912, the following officers were elected for the year 1912-13: President, Dr. Henry P. Parker; Vice-President, Dr. D. P. Hickling; Secretary, and Treasurer, Dr. Llewellyn Eliot; Assistant Secretary, Dr. Louis C. Ecker; Executive Council, Drs. Eliot, McKimmie, Shands, Cope-land and Reichelderfer.

Dr. J. R. Nevitt read the address of the retiring President. He took for his subject, "*Suicide.*" Spoke of the history of suicide and referred to the number of such cases that came under his official notice, and deprecated the great publicity the daily press gave such occurrences, as these reports only tend to increase the disposition on the part of individuals to commit suicide.

Dr. Hickling said, only a small number of persons who commit suicide are insane, and strange as it may seem, except in the depressed form of maniac depressive insanity, only a very few of the insane are suicidal. Hypochondriacal and paranoic delusions sometimes cause a suicidal reaction, but they are comparatively rare; the general parietic occasionally, although very infrequently, terminates his existence by suicide.

The prevention of suicide is only possible by constant observation, and in some cases immediate restraint. These methods are practically impossible to continuously keep in force, and when strictly carried out, reduce the patient to the status of a prisoner—a worse condition than is imposed on any convict. These conditions should not, in his judgment, be enforced in any institution, especially as we know that when the slightest oversight by an attendant occurs the patient's desires are carried out. On looking up

the history of suicides and how they have occurred, it is evident that to prevent them in all cases is simply impossible.

In his judgment the greatest cause of suicide among those who are not insane is the excessive use of alcohol, especially when associated with shame and remorse.

Dr. Edwin L. Morgan said he knew of an Indian woman who had committed suicide by hanging, of an Indian who had attempted suicide by stabbing himself in the abdomen. He thought as a race, they rarely suicide. Referred to Hamlet's soliloquy; also to a paper written by Dr. Taylor, of Virginia, on the death of Ophelia. Spoke of the brilliant literary style of Voltaire, in his *Philosophical Dictionary*, who called attention to the Koran, where the command, "Thou shalt not commit suicide," is used in contradistinction to "Thou shalt not kill." Dr. Morgan believed those who committed suicide were insane or temporarily deranged. No one but a man who had contemplated or attempted suicide could appreciate the strain under which these persons labored.

He, too, believed publishing accounts of these cases increased the number of cases of self-destruction.

Thought the progress of medicine had been retarded in the past by metaphysics, or when philosophy dominated the profession. The *ex cathedra* of the past has been the upas tree of the profession. Inquired as to drug delirium or hallucinations and related a case of such hallucinations following the administration of the sulphate of morphine. Suggested that insanity might be a chemical physical reaction occurring within the body and producing hallucinations, as in morphine poisoning.

Dr. T. C. Martin spoke of cases in his experience where several attempts at suicide had been made, showing the perseverance of some subjects. Had been present at three hangings; the victims had each died of strangulation, with rhythmic contractions of the flexors.

Dr. Bennett spoke of guilt causing the criminal to destroy himself—of murder—referring to a case where the murderer killed himself.

Dr. W. H. Atkinson reported some cases of alcoholism and showed the good results he had obtained from hyoscine hydrobromate.

Analyses, Selections, Etc.

Dietetic Treatment of Infantile Enteritis.

W. M. Salter, Repton, Alabama, gives a very good synopsis of our knowledge in this connection. He says that it was formerly believed that the cause of diarrheal disease was largely of mechanical or bacterial origin; but while they are factors, they are secondary, increasing the trouble when once begun. The real cause begins long before the onset of diarrhea. Recent investigations by Finkelstein, Meyer and others (which was referred to in this department some months ago) have demonstrated that the main factor is the disturbance of balance between food elements taken into the alimentary tract and food requirements, not only in quantity, but more particularly in regard to the relationship of individual constituents.

Since examination of stools has become common practice, it is found that the proteids are less at fault than previously supposed; in fact, curds once thought to be simply undigested casein are found to be formed from substances in the lower bowels. It has been learned that sugars play a more prominent part, and that the salts must be reckoned with. Some investigators practically lay all or most of the blame on the last two, believing that casein is no more harmful than water; and they seem to have been amply sustained. Finkelstein claims to have produced diarrheal disorder by increasing the amounts of salts and sugars in the food of healthy infants; and, conversely, other children have been cured by a reduction of these constituents, being given casein diet almost wholly.

If the case, by analysis of the stool, shows itself to be plainly one of proteid incapacity, a reduction of that article is all that is necessary, provided lesions due to bacterial invasion have not been formed. In the later stages, the diet is rather varied, but agreeing in the main in certain important points, namely, reduction of sugars and fats, increase of casein and addition of lactic-acid bacteria.

The different foods used are: (1) Plain buttermilk; (2) artificial buttermilk made from the two strains of lactic-acid bacilli; (3) buttermilk cooked with flour and sugar; (4) casein-milk. The composition of plain, raw, fresh buttermilk is proteid, 2.6; fat, 6; sugar, 3. The

chief advantages claimed for it are that the fats and sugars are especially low, the casein is coagulated in the form of casein lactate, and it contains much lactic acid and lactic-acid bacteria. It may be used in either acute or chronic conditions and at all ages; and while it may cause vomiting at first, good results will follow if its use is persisted in a few days.

Artificial buttermilk is a good deal like the natural product, but its making can be more definitely controlled. Two varieties of lactic-acid bacteria are used—the *bacillus acidophilus*, found normally in the large intestine and therefore, employed when the lesions seem more marked in that region, and the *bacillus Bulgaricus* when the lesion is in the small intestine. Buttermilk with sugar and flour added is frequently used. One quart of buttermilk is cooked for twenty minutes; suitable dilution with barley-water is made, and cane-sugar added to make up the caloric value.

The value of this modified buttermilk seems to lie in the low fat percentage, the presence of lactic acid and a changed proteid, the bacteria being killed in the process of cooking.

A food exploited by Finkelstein is prepared as follows: Heat one quart of milk to 100 degrees F., add a half-ounce essence of pepsin; stir well; allow to stand at the same temperature a half hour, then filter. Force the curd several times through a fine sieve; add one pint of water and one pint of buttermilk. The composition of this mixture is: Proteid, 3 per cent.; fat, 2.5 per cent.; sugar, 1.5 per cent.; salts, 0.5 per cent. One quart contains 370 calories. This food is used in all grades of intestinal disturbances, and the results have been very gratifying. It may be continued until the stools are normal and a gain in weight has begun, when return should be made to the regular milk mixture.

Care must be had that none of these forms of feeding be continued too long, for rickets and scurvy may occur. The malted foods, especially the malted soups, are valuable at this time to more rapidly increase weight.—(*Southern Medical Journal*, January, 1913.)

Auricular Fibrillation and Its Treatment.

Through the recent research work of McKenzie, Lewis, Cushney and others, much new light has been shed upon the pathology of the heart and the mechanism of the heart-beat, says F.

G. Oppenheimer, New York. It is especially to that common form of cardiac irregularity formerly known as "delirium cordis" or arhythusia perpetua, and now termed "auricular fibrillation," that much attention has been given, with brilliant results.

In the normal individual, the origin of the heart-beat has been almost definitely established. Beginning at the junction of the venae cavae with the right auricle, the stimulus traverses a certain thin sheath of fibres called the "bundle of His," which passes downward between the muscular walls of the auricles where it divides, and then terminates in the muscular tissue of the ventricles. The normal heart-beat originates at the beginning of the "bundle of His," causing the auricles to contract. The auricles in turn pass the stimulus onwards causing the ventricles to contract. The interval thus left between the auricular and ventricular contractions has been estimated at 1-5 second.

In auricular fibrillation, the rhythmical contractions of the auricle are grossly disturbed. A condition of fine tremor of the muscle fibres of the auricle develops so that at times, the auricle is in a state of complete paralysis. The muscular walls of the auricle are maintained in a position of diastole, thus preventing the complete filling of the ventricle. The many stimuli originating in the irregular twitchings of the auricular muscle fibres are still partly conducted through the "bundle of His," in turn stimulating the ventricles to rapid, irregular contractions which are readily felt at the radial pulse.

Besides the valvular lesions which frequently occur with auricular fibrillation, enlargement of the whole heart, dilation and hypertrophy of the auricles are common, according to Lewis. A diffuse fibrosis accompanied by a leukocytic infiltration and atrophy of the neighboring muscle fibres are the most frequent pathological changes noted, according to the same author.

Auricular fibrillation occurs at any time between the ages of 13 and 85; very rarely before or after these ages. Two distinct groups of cases are observed. The rheumatic group, which occurs most frequently in young individuals, giving a previous history of rheumatism and its associated conditions, is the more important. The non-rheumatic group of cases

occurs chiefly amongst elderly people who give no previous rheumatic history.

While a positive diagnosis of auricular fibrillation can only be made by means of modern graphic methods, there are certain clinical phenomena which, when taken into consideration, give us a fairly positive means of recognizing the condition. These, according to Lewis, are the following:

When the ventricle beats irregularly at a rate surpassing 120 to the minute, auricular fibrillation is almost always present.

When an irregular ventricular action accompanies signs and symptoms of a severe heart failure, it is the result of auricular delirium.

When moderate exercise causes a heart which is slow and irregular, to beat more rapidly and more irregularly, auricular fibrillation should be suspected.

When a patient with a slow and irregular heart-beat indulges in moderate exercise and the heart-beat becomes slower and more regular, auricular fibrillation is *not* present. The condition is due to some other cause (heart-block, premature beats, etc.).

A persistent irregular pulse is probably always due to auricular fibrillation.

The symptoms of auricular fibrillation differ very little from those of any severe cardiac lesion, excepting that patients suffering from a persistent form of the disorder often complain of fluttering in the chest and neck and are often conscious of the irregular heart-beat. Such patients are also more prone to shortness of breath, exhaustion and other symptoms of over-exertion than are patients with similar valve lesions and a like degree of dilation.

Auricular fibrillation gives an additional significance to every cardiac case with which it is associated; it always denotes serious muscular damage. Few patients survive it more than ten years after its inception. Irregular hearts beating more than 140 a minute, are rarely maintained for more than a few months; rates of 160 or more do not continue for more than a few weeks. Lewis thinks that the rapid reduction of the cardiac rate and its response to suitable treatment, including rest and medication, offers the best guide in determining the prognosis.

The complete physical and mental rest enjoined in all serious cardiac disease should be

insisted on in the treatment of auricular fibrillation. Aside from this, the chief measure to be employed in the treatment of the condition, is the proper administration of digitalis and drugs belonging to this group. Lewis states that auricular fibrillation is an absolute indication for the use of digitalis whenever the heart rate exceeds 100 per minute, while the patient is at rest. Especially marked and rapid is the effect of digitalis upon those cases belonging to the rheumatic group. The cases belonging to the non-rheumatic group react less favorably to the drug, and at times not at all. Rest in bed is advised for all cases in which the irregular heart beats more than 100 per minute while the patient is at rest. Lewis gives as a routine the tinctures of digitalis or a fresh infusion of the drug; 10 to 15 minims of the former or 1 1-2 drams of the latter, 3 or 4 times a day. The dosage is gradually increased after four or five days if no reaction is observed, until nausea, diarrhoea or headache or retardation of the pulse is noted. The drug is then reduced for a few days. When the pulse rate is reduced to 60 to 80, digitalis is temporarily stopped. After this, the patient may be kept comfortable with as little as 5 minims of the tincture 3 or 4 times a day, given over a long period of time. In some cases heavier doses must be maintained in order to keep the patient comfortable. Strophanthus or squills may occasionally be substituted for digitalis with benefit when patients present an idiosyncrasy for digitalis.

Patients suffering from auricular fibrillation, who present themselves with a pulse of 170 to 200, when first seen, are in a precarious condition. Heavy doses of digitalis are needed and not less than 20 to 30 minims of the tincture of digitalis should be given 3 or 4 times a day. Lewis prefers strophanthin given intravenously in doses of 1-250 grain at two-hourly intervals for three or four doses. This often reduces the pulse rate in a remarkably quick time.

Digitalis acts in auricular fibrillation by lessening the conductivity of the "bundle of His," thereby diminishing the number of ventricular beats, by allowing the stimuli of only the strongest auricular beats to be transmitted. In other cardiac (valvular) diseases, digitalis acts by stimulating the vagus, thereby reducing the rate of cardiac action.—(*Med. Review of Reviews*, January, 1913.)

Correspondence.

Diabetes-Mellitus.

To the Editor.—I am undertaking an exhaustive research into the pathology, etiology, and dieto-therapy of diabetes-mellitus. I am very anxious to hear from every physician in the United States who has a case under treatment, or who has had any experience in the treatment of this malady. Von Noorden says: "The best treatment for the diabetic is the *food* containing the *greatest* amount of *starch* which the patient can bear without harm." If any physician who reads this has similar or contrary experience and would take the trouble to write me, I would esteem it a special privilege to hear from him, if only a postal card.

WILLIAM E. FITCH, M. D.,
355 West 145th St., New York City.

Book Notices.

Treatise on Diseases of the Hair. By GEORGE THOMAS JACKSON, M. D., Professor Dermatology in the College of Physicians and Surgeons, Medical Department of Columbia University, and CHARLES WOOD McMURTRY, M. D., Instructor in Dermatology in the College of Physicians and Surgeons, Medical Department of Columbia University, New York. 8 vo. 366 pages, with 109 engravings and 10 colored plates. Cloth, \$3.75, net. Lea and Febiger, Philadelphia and New York. 1912.

In this treatise the authors have attempted to present all that is known about diseases of the hair and scalp. The table of contents, which will give a proximate idea of the scope of the work, begins with General Considerations (including anatomy, physiology and hygiene of the hair); then follow divisions on Essential Diseases of the Hair, Inflammatory Diseases of the Hair Follicles, Parasitic Diseases of the Hair, and, lastly, Diseases of the Hair Secondary to Diseases of the Skin. So far as we know, this is the first work printed to cover this special field that may be considered authoritative, scientific and practical.

A New Work on "The History of Medicine,"

By Fielding H. Garrison, M. D., Principal Assistant Librarian, Surgeon-General's Office,

and Editor of the *Index Medicus*, will shortly be issued by the W. B. Saunders Company, of Philadelphia and London. This one volume will present, in concise form, a complete history of medicine from its earliest times. Dr. Garrison's twenty years' experience in medical bibliography, and the unusual advantages derived from his work in the Surgeon-General's office, should fit him most admirably for this work.

Editorial.

Every Practicing Physician in Virginia Must Register Before March 13, 1913, to Be a Legal Practitioner.

The Virginia Legislature at its last session passed a new medical law, entitled "*An Act to regulate the practice of Medicine and Surgery in the State of Virginia*," etc., approved March 13, 1912, Section 6 of which reads, in part, as follows:

"6. *Registration of certificates; verification certificates; duplicate certificates; reciprocity. —Within one year after the passage of this act all licensed practitioners of medicine in this State shall, as above provided, register their certificates to practice medicine in the office of the clerk of the circuit or corporation court of the county or corporation in which they reside.*"

Further information, if desired, may be obtained from Dr. Herbert Old, Secretary-Treasurer of the Medical Examining Board of Virginia, Norfolk, Va.

The Abuse of the Health Officer.

There can be no question about the practice of medicine being the most abused and the poorest compensated method of gaining a livelihood. The duties attending its practice are onerous and exacting; the relaxations for pleasure are few, and seldom does any member of the profession accumulate a fortune from the fees gathered. While it is true there are many wealthy physicians, it will be proven, upon inquiry, that these cases are due to the returns from investments, legacies, or wealthy parents, and not entirely to fees received.

As an individual officer of the community, next to the tax collector, the health officer is the officer upon whom most abuse is heaped. His office requires him to execute health laws and health regulations, for the enactment of which he is not always responsible. This is especially true when the question of quarantine against small-pox arises.

Quarantine laws have been in existence for hundreds of years and will continue to be found upon the statute books until the people recognize and put in force methods which will render these laws unnecessary.

A quarantine against any disease works a hardship, and that against small-pox cases is probably the most severe. Men are prohibited from following their usual avocations; factories are paralyzed or crippled; wild consternation attacks the community, and the health officer is besieged and urged to rid a town or city of a pest for whose presence the individual member of his community alone is responsible.

When a case of small-pox appears in a city the health officer is notified. He places the case in isolation, collects all who are known to have been exposed or in contact with it, vaccinates them—as likewise all who apply—disinfects the premises from which the patient has been removed, with the result that, if exposure to the disease has not been prolonged or intimate, the disease stops right there. Where these contacts have never been vaccinated previous to their association with the sick man, the effect may be different and other cases will develop.

A successfully vaccinated person who, after exposure to small-pox, is re-vaccinated, should never be quarantined; he should be allowed to continue at his work, but be kept under supervision to guard against his developing small-pox, a thing that will rarely happen. To place such a subject in quarantine, thereby making him a charge upon the taxpayer, is frequently an abuse of power, an exhibition of ignorance of the protective power of vaccination or an unwillingness to accept the results of the experience and studies of other men. It is also an incentive to conceal those sick of such diseases, and is as much to be censured as is a case of highway robbery. The city may furnish fuel and a limited amount of provisions; occasionally it will furnish clothing and other articles, but it does not pay the house rent or the ser-

vants' hire. The vaccinated unquarantined man will be a material aid in the management of small-pox.

On the other hand, those persons who have never been vaccinated should be vaccinated and, if necessary, re-vaccinated and segregated, for they are a menace, and will so continue until the period of incubation expires. This period varies in length from ten days to sixteen days, according to the State; it would be better did all States have the same period of twenty-one days.

That a recent vaccination following an exposure to small-pox is protective against small-pox, if one has already had a vaccination, is an established fact. Nurses and physicians connected with small-pox hospitals confirm this.

In the execution of the duties of his office the health officer is blamed. He is unable to prevent the appearance of quarantinable diseases if the people of his city will not assist him to the extent of their power. In this way money would be saved, which otherwise goes to waste. Vaccination should be an essential to gain employment.

Minnesota, Utah, and some other States have abolished quarantine against small-pox, thereby placing the burden of protection from its ravages upon the individual. It is true the number of cases have increased in these States, but they will soon cease to appear and these States will be protected as is Germany. Until there is such a general adoption of this plan, small-pox will continue to appear, and quarantine will be necessary against it, and the health officer will continue to be abused for the execution of his duty.

L. E.

Augusta County (Va.) Medical Association.

Dr. F. M. Hanger presided at the last regular meeting, held in Staunton, February the 5th. The usual routine of business was enacted, and interesting papers were read by Drs. Payne, of Covington, and Burkholder and Phelps, of Staunton. In view of the suggestion made in his paper, by Dr. Phelps, attending physician to the Staunton Military Academy, to enforce the study of physiology, hygiene and sanitation in the public and private high schools of this State, a Committee on

Education and Publicity, composed of Drs. Wilbur M. Phelps, H. F. White, M. J. Payne, J. S. DeJarnette, K. Bradford and H. B. Spencer, was appointed to bring the matter before the profession and general public, with the hope of securing the enactment of a law for this purpose at our next General Assembly.

Conference for Eradication of Malaria in the South.

A conference of leading physicians, the Surgeon-General of the U. S. Public Health Service, and the governors of eleven Southern States will be held in Norfolk, Va., February 21, for the purpose of mapping out a plan for the eradication of malaria more especially on the Atlantic Seaboard, but ultimately in the entire South. It is thought that the method may be adopted which is now used in Italy, and which has resulted in a marvelous reduction of the percentage of malarial cases in that country. Dr. Wilson E. Driver, of Norfolk, the originator of the movement, has issued invitations to an elegant dinner, following the conference, in honor of the distinguished guests.

A Society for the Advancement of Clinical Study

Has recently been organized in New York City, the purpose of which is to maintain a bureau of information which will furnish to resident and visiting physicians definite information regarding the clinical facilities of the hospitals and laboratories of the greater city. For this purpose a bulletin board has been installed at the Academy of Medicine, 19 West Forty-third Street, in charge of a special clerk, who will be on duty between the hours of nine and six to answer all telephone inquiries (telephone 974 Bryant). The bulletin board will consist of two sections, on one of which will be posted month by month the regular clinics, medical and surgical, and also laboratory demonstrations, all of which are held at stated hours. The second section will include full announcements of daily operations and demonstrations of cases both medical and surgical, which, as far as possible, will be announced on the day preceding their performance. It is believed that these facilities will afford physicians who are interested in observing particular operations and

operators or clinicians, an opportunity to obtain the desired end with the least trouble. It is hoped that by this means the large and unexcelled clinical facilities of New York City will be made more accessible to those who may desire to make use of them.

Dr. H. R. Lickle,

Of Tangier, Va., has been appointed a hookworm inspector in Virginia, by the State Health Board under its arrangement with the Rockefeller Sanitary Commission, and assigned for work in the Northern Piedmont section of the State. Dr. Lickle is the fourth inspector appointed for this work in Virginia, and, until the hookworm dispensaries open up in the spring, will be engaged in school inspection work.

Seventeenth International Congress of Medicine.

Dr. Foveau de Courmelles, of Paris, has been requested by the Bureau of the Congress, which meets in London, August 5-12, 1913, to prepare a report on "The X-Ray and Radium in Gynecology," for the sections on Radiology and Gynecology. In order to make as complete a report as possible, the doctor asks that his confreres will forward him at once, to 26, rue de Chateaudun, Paris, any important observations they may have made on the subject.

The Valley of Virginia Retail Druggists' Association

Held their semi-annual meeting in Charlottesville, February 11th, G. M. Farrar, of Clifton Forge, presiding. One of the principal matters considered by the Association was the discussion of plans for the elimination of the sale of "quack" medicines in Virginia. Staunton was selected for the next place of meeting, and F. R. Landon, of Charlottesville, and H. H. Aldhizer, of Broadway, were elected president and secretary, respectively.

This Association was organized three years ago in Rockingham County, for the purpose of advancing the interests of the retail druggists, and has been growing so rapidly, that it is hoped it will ultimately include retail druggists of the entire State.

Changes in Virginia of U. S. Army Medical Officers.

Lt. H. H. Darnall, M. R. C., relieved from duty at Ft. Hunt, February 1, and proceeded to his home, at Washington, D. C.

Lt. J. D. Whitham left Ft. Monroe, February 4, for Ft. Howard, for temporary duty.

Lieut. J. R. McKnight left Fort Andrews, Mass., February 14th, for Newport News, Va., to report to Medical Superintendent Army Transport Service.

Lieut. F. N. Chilton left Fort Myer, Va., February 12th, on leave of absence for one month and fifteen days. Under orders to Philippine Islands, April 5, 1913.

Medical Inspection of Pupils.

The medical inspection of the Orange County, Virginia, schools is said to be the most extensive medical inspection of rural schools ever made in America. Officers of the State Boards of Health and Education are being assisted by physicians from the University of Virginia, and every pupil of the county is being tested for defective vision and hearing, for throat and nose trouble, for organic disease and for mental deficiency.

Dr. Frank H. Hancock,

Of Norfolk, Va., formerly a member of the Medical Corps, Virginia Volunteers, with rank of captain, has resigned from the service on account of his professional work.

International Congress on School Hygiene.

Drs. E. C. Levy, N. T. Ennett, Ennion G. Williams, Allen W. Freeman, William T. Oppenheimer, L. T. Price and M. D. Hoge, Jr., are among those who will represent Richmond at the fourth annual meeting of the above Congress, which will be held in Buffalo, N. Y., August 25-30, 1913, Professor Charles W. Eliot presiding.

Emporia, Va., Has Board of Health.

The town of Emporia, Va., has organized a Board of Health, the members of which are Drs. R. T. McNair, Lucien Lofton, and Mayor J. E. Everette.

American Physicians' Tour.

Great interest is shown in Europe in the first American Physicians' Tour, of which Dr.

Richard Kovacs, 236 East Sixty-ninth Street, New York City, is secretary. Starting from New York, on July 3rd, an itinerary of a month will include many of the most important European cities; and will bring the party to London August 5th, just in time for the International Medical Congress, which is to meet in that city August 6-12. A number of medical and social features will add to the attractiveness of this tour.

Transactions of the XV International Congress of Hygiene and Demography.

As the number of sets of these transactions printed will depend upon the number of advance subscriptions, orders should at once be sent to the Secretary-General, Dr. John S. Fulton, Senate Annex, Washington, D. C. No orders but those accompanied by five dollars (which covers cost of delivery) will be received. The transactions will be somewhat over four thousand pages of text, with many illustrations, in good paper covers, and will comprise five or six volumes.

Dr. St. Julien Oppenheimer,

Of this city, has been appointed assistant police surgeon for Richmond, to assist Dr. C. W. P. Brock in the work which he has been performing for a long number of years.

The Instructive Nurses' Association, Richmond, Va.

The annual report of the Association shows that the work done by the nine nurses in its employment, in spite of absences and changes in the staff, included 17,490 visits. Of this number, 2,330 patients were treated, and a number of those with whom the nurses came in touch were turned over to hospitals, or such organizations as seemed best suited to their needs.

Sterilization Bill Vetoed.

The bill recently passed by both houses of the Vermont Legislature, providing for the sterilization of defective criminals, was vetoed by the Governor, when it came before him for his signature.

The United States Civil Service Commission

Announces an open competitive examination, March 10, 1913, for assistant in experimental

therapeutics, Philippine service, for men only. Salary, \$2,000 a year.

It will not be necessary for applicants to appear at any place for examination. Their eligibility will be determined upon evidence furnished in connection with application and examination Form B. I. A. 2, concerning their training and the work which they have accomplished. Applicants must be graduates in medicine, and between the ages of eighteen and forty. In addition, they must show at least one year's post-graduate experience in conducting laboratory research work in experimental therapeutics, or they may submit copies of publications prepared by them, evidencing their ability to carry on original experimental therapeutics work.

Persons who comply with above requirements and desire this examination, should at once apply for full particulars to above Commission, Washington, D. C.

W. B. Saunders Company,

Publishers, of Philadelphia, formally opened their new building on West Washington Square, for the inspection of the medical profession, on February 4, at which time luncheon was served those present.

The Virginia State Board of Pharmacy,

As a result of the examinations held in Richmond the middle of January, awarded certificates to twenty-six of the thirty-four applicants to practice pharmacy in Virginia. Twenty-one received certificates as registered pharmacists and five as assistant registered pharmacists. This is a decided improvement on recent examinations, evidently indicating a better degree of preparation.

Excellent Opportunity for Energetic Doctor to Locate in Virginia.

\$7,500 will purchase a beautiful country homestead, approximating 147 acres in a desirable district, 1 1-2 miles from railroad, offering a profitable practice. Houses, orchards, shade trees, telephone, free delivery, and excellent roads. Buildings and improvements alone cost more than the price asked. Address Thos. P. Spencer, 165 Broadway, New York, N. Y. (Adv.)

THE Virginia Medical Semi-Monthly.

(FORMERLY VIRGINIA MEDICAL MONTHLY.)

Vol. 17, No. 23.
Whole No. 407.

RICHMOND, VA., MARCH 7, 1913.

10 Cents a Copy
\$2.00 a Year

Original Communications.

IMPORTANCE OF MENTAL HYGIENE IN THE YOUNG.*

By PAUL V. ANDERSON, M. D., Richmond, Va.
Westbrook Sanatorium.

Thanks to the great advances in preventive medicine in recent years by which man has saved man from untold pain and sorrow, the child is beginning to come into his own, and much is being done in a scientific way for his development. It is being recognized universally that first the child must be a good physical machine. Therefore, children are now being examined for defective sight, defective hearing, for adenoids, and for any defect which they may have which will, in any way, hinder their progress in school or prevent them from becoming strong and useful citizens. It is proper that physical development should receive attention first, but at the same time it must be borne in mind that mental hygiene is just as important as physical hygiene. For of what avail is the man who is perfect physically, but mentally a dement? He is not only of no value to himself, but he is a parasite on his community.

Too little attention has been given to the development of the play instinct in children. "To acquire alert minds, children must be alert; and the young child can only be alert as his play instinct is aroused. Shut out the play instinct and you stunt his growth; neglect to draw it out, and you lessen his possibilities for strength."

Greece, which has produced the highest type of man the world has yet seen, recognized the great value of play, games and sports. That

youth was most honored among them who excelled in athletics, for, to them, the best body signified the best mind. Dr. Stanley Hall says, "Knowledge for its own sake is a dangerous superstition, for what frees the mind is disastrous if it does not give self-control. Better ignorance than knowledge that does not develop a motor side. Body culture is ultimately only for the sake of the mind and soul, for the body is only its other ego." The play instinct should be cultivated because play not only develops the child physically and mentally, but it is a developer of character. Games which require decision and action should be played. Let the child rub up against his fellows and find out his good points as well as his defects, for in this way only can the corners be rubbed off and the nonsense knocked out of those who have been pampered and petted and made to believe by indulgent parents that they and they alone are the lords of creation. If more cities would follow the example of Chicago, which has spent ten million dollars on play-grounds, the advantages derived by children therefrom would be incalculable. It has been well said of Chicago play-grounds that "They are the greatest civic achievement the world has yet seen."

Physical hygiene, however, must be equal with mental hygiene if we wish to obtain the best results. Our system of education for many years has been based upon the idea that all children have equal mental attainments and there seems to be a mania for "standardization." The so-called standard boy or girl passes through the educational mill apparently unharmed, but those who are precocious or backward or in any way defective suffer. It is of these unusual children that I wish to speak especially.

These idiots and imbeciles should be segregated as early as possible, not only because

*Read before the forty-third annual meeting of the Medical Society of Virginia at Norfolk, October 22-25, 1912.

association with them is detrimental to normal children, but because they are dangerous, especially at the time of puberty. At this time, "idiots animalize, imbeciles become violent, egoistic, coarse and vulgar, and the weak minds grow unsettled in their moral feelings and are without resistance to sensations that now erupt within them." The males often become the violators of women and children; the females frequently become prostitutes, disseminating the vilest of venereal diseases, not only crippling the youth of our land and impairing their usefulness, but maiming for life innocent women and unborn children.

Another class of cases is that of the laggards—the repeaters of our schools—backward or retarded boys and girls. According to Ayres, of the Russell Sage Foundation for the Study of Backward Children, one-fourth of the school children are either not in the proper grade for their age or else they have made less progress than they should have made for the time they have attended school. He states that in fifty-five cities of the United States the cost of repeaters is 14 per cent. of the total cost of the whole school system. It is this class to whom much attention is being directed to-day, and, thanks to preventive medicine and to scientific pedagogy, the future looms big with hope for these ugly ducklings, who, although they may take longer than the average child to develop, in many cases find themselves at last, and not only overtake their fellows; but frequently far out-distance them in the race for life. Hutchinson has aptly said, "Do not on any account neglect the average 'common or garden child.' He is well worth all the time and care you can spend on him; but put all your ablest intellects, your divinest patience, at work on the exceptional—yes, even on the abnormal—child: for among these brambles and tares you will reap some of the finest and most perfect of the wheat." Goldsmith's teacher said that he was the dull-est boy she had ever taught; Byron stood at the foot of his class; Darwin was considered "a very ordinary boy and below the common standard in intellect," and Webster, in early youth, was considered a dullard.

Retardation may be due to defective sight, defective hearing, adenoids, and acute infectious diseases, or it may be due to too rapid growth, to the beginning of puberty, and, at times, even to starvation. Some children nat-

urally develop slowly and have to repeat a grade two or more times, yet they are not defective, and if properly cared for and if properly taught, can eventually take their place with their fellows. It is of the utmost importance not to allow these often over-grown boys and girls to become discouraged because they cannot keep pace with their fellows. An effort should be made to find something which they can do well, no matter how simple it is, for once they get the habit of succeeding—of knowing they can do a thing well—they frequently begin to advance, and finally are able to take their place with children of their own age. Often such children, however, become the butt of ridicule and give up school in disgust. They are undeveloped mentally and become the vagabonds, the tramps, and the derelicts of our towns and cities.

In speaking of retardation, Professor Lightner Witmer says that "any child, the functions of whose brain are not developed up to the normal limit for his age, is suffering from retardation, and a youth who arrives at the age of maturity with his brain below the level of functional development which it might have attained if other methods had been employed will carry through life a permanent arrest of mental and moral development." There is no doubt that many children stand at the parting of the ways and if a helping hand is extended they may become useful men and women. If it is withheld and they are neglected they become derelicts or even demented. Surely, common humanity demands that these children should have the best attention medicine and pedagogy can give them: Before they are condemned as hopeless (and some are hopeless), physical examination should be made and every possible defect which could contribute to backwardness should be ascertained; then mental tests should be given to decide whether there is a simple retardation which proper training can overcome, or whether there is a permanent mental defect.

DEMENTIA PRAECOX.

Still another class consists of those children who are not defective, but who are rather "queer or peculiar" and who so frequently develop dementia praecox and constitute the majority of the cases in insane hospitals to-day. In the observation of several hundred cases of dementia praecox during the past five years

at the State Hospital, Morganton, North Carolina, and at Richmond, Virginia, I have been greatly impressed by the fact that, as children, many of them were not defective, but were peculiar—different from other children—and did not “have healthy mental habits—habits which could have formed a sound balancing influence in their conflicts.” Many were exceedingly bright and were the wonder children of the school, but were like “straw fires” which burn brilliantly for a minute and all is over. Others were dull and were unable to keep up with their classes. Many were seclusive, day dreamers, reticent, shy and sensitive to a fault and overly conscientious—that is, “prematurely and one-sidedly conscientious.” Instead of playing the rough-and-tumble games so dear to most children they spent their time reading or in the company of their elders. They had no chums and missed the healthy intercourse with those of their own age which would have been a wholesome correction for their abnormal habits of thinking and living. Excessive religious interest was manifested by many and they worried over abstract problems which neither they nor anyone else could solve. Finally they came to live in a world of dreams and good resolutions. They lost sight of the real and “developed an insidious tendency to substitute for an efficient way of meeting difficulties a superficial moralizing and self-deception.” A life of action at last became impossible, so fixed had become their abnormal habits, and under some strain which would have meant nothing to a normal individual, a mental breakdown occurred.

A few case histories of dementia praecox will illustrate the points I have tried to make.

The first case occurs in a girl who has always been nervous; was scared of the dark; easily excited over trifles. When her teacher would speak to her unexpectedly, she would jump. She has had marked emotional instability all her life and cried or laughed excessively at the slightest provocation. She has always been sensitive and more or less suspicious. To quote the patient: “I started to school in September, 1907. I studied my books all the time, and all the students knew that the teacher gave us lessons which were too long. He would knock his fist against the board when you missed your spelling. He treated us like beasts and made several of us

nervous, but the rest were not as bad as I. After a while I thought about my books all the time, night and day, and I couldn't sleep at all some nights. I couldn't get some of the examples in mathematics and I cried like a baby.” The patient states further: “Thinking about my examination got me worse. I thought I would fail and it would have been the first time I had ever failed. Finally, I had to quit; I couldn't study two months before Christmas. I begged the children to help me before I quit and I told them I was so nervous I couldn't think. Teacher was hard to me. Some people haven't got a bit of feeling! I gave up at last and cried most of the time.” The patient rapidly grew worse; began to think that her relatives and friends were against her and persecuted her. She had marked hallucinations of sight and hearing; also marked hysterical seizures. She attempted to kill herself by taking lye. This case might have been saved had the early symptoms of mental breakdown been recognized and had she been taken from school.

S. J. learned well at school, but was always nervous and different from the other children in the family. She has had marked hysterical seizures ever since her first menstrual period which occurred when she was eleven years old. Two years ago she worked in a telephone office. She soon got so, however, that she could not remember, her books became mixed up, and she had to go home for a while to rest. After resting at home for a few weeks she became much better and returned to the office and tried to straighten out the books. She soon became badly upset again, however, thought that she was going to be lost; preached and prayed and was hard to control.

L. J. was brought up on a farm, but worked irregularly. He states that at school he could not get his lessons as well as the other children; was worried so much by the effort to prepare his lessons that he became discouraged and quit school. Quoting him: “I am easily bothered and worried and I am slow to think and slow to learn and easily forget things. When somebody is mad at me I cannot keep it out of my mind.” Later he became markedly hypochondriacal; suffered with many imaginary ailments, and worried greatly over these. He was quite a mechanical genius and invented a mail box which was patented and for which he had several offers.

but he did not accept them and nothing came of his patent. He worried much over this; in fact, he said, "I studied about this patent so much that, at times, I was right drunk." At times, too, he would have violent outbreaks of temper. Occasionally he would go away from home to work, but couldn't stick to any work for any length of time. These abnormal tendencies, uncontrolled, finally brought about a mental breakdown.

The fourth case occurs in a boy twenty years old, whose maternal aunt was insane. He was always quiet, sober-minded; of good habits; was exceedingly bright in high school and entered college at seventeen. He failed to pass several of his first examinations at college, however, and did even worse with his final examinations; complained during the year of his eyes, but examination showed no ocular trouble; said he couldn't concentrate his mind and didn't feel well. He did not return to college the next year, but the following fall entered another college with his brother; remained only a short time and returned home suddenly; he realized that he was unable to do mental work. Soon he became badly upset. He is now silly, simple and rather markedly demented. Apparently the insanity had been developing for three years, as manifested by his inability to concentrate his thoughts; his indefinite feelings of discomfort, and his imaginary eye trouble. If these premonitory signs of mental breakdown had been recognized, and had the boy been taken out of school and given proper rest and care, the resulting insanity might have been averted.

M. A. was spoiled as a child and allowed to have her own way in everything. She was sensitive, and was suspicious of her teachers; would not play with her fellow school children because she thought they imposed upon her, and, at times, she fought them. After puberty, which occurred at thirteen, she became very seclusive and was moody. She did not confide in her girl friends because she thought they could not be trusted. The companionship of boys was avoided because they swore, and she feared that she would become contaminated by association with them. She could not learn well at school, and could not remember what she did learn. This failure to make progress distressed her and she worried over her spiritual condition, because she thought she was not living right. She quit

school because she thought her teacher treated her badly, and she brooded over this. In August, 1910, she had marked delusions of persecution; thought everyone was against her, and especially thought that her purity was doubted.

B. B. has always been seclusive, sensitive and timid; would not play with children; stayed in the house with her elders most of the time; learned exceedingly well at school and has always read a great deal. She didn't like the boys; in fact, she would leave the room when they came to her home. She has never taken any interest in dress, and has been excessively religious all her life. She has never depended on herself, but has looked to her sister to plan for her. She could sew quite well after her sister had planned and cut out a garment, but could not do this on her own account. After awhile she quit going to church; became more and more seclusive, and, at times, refused to see even the members of her own family. In October, 1910, she became upset; thought that some one was exerting a bad influence over her and was trying to make her bad. She thought also that everyone was against her; that she was being poisoned, and she refused to eat and drink on this account.

PROPHYLAXIS.

The physician and the teacher have a grave responsibility in their relation to the child. If the physician can recognize the early symptoms of a mental collapse as he does the early symptoms of a physical breakdown and if he can instruct the parent and the teacher how to manage children who are on the verge of a mental breakdown, many children can be saved from the blighting curse of insanity and many a home can be spared this most awful of sorrows. Not only the children of neurotic parents and those who have a bad mental heredity, but any child who shows a disinclination to take part in the healthy sports of childhood, or shows a falling off in his school work, should be examined, and, if possible, the cause of his lack of interest and the cause of his falling off in his work should be ascertained. The fact should be recognized, too, that, at times, retardation may be no more of an evil than precociousness, and that while retardation may only lead to a slowness of progress, precociousness, at times, may develop into insanity or extreme dullness. Defective sight and defective hearing, bad breathing due

to adenoids, or any physical defect should be remedied. The school life of many a child has been made burdensome and his adequate preparation for life's work has been seriously impaired by physical defects which could have been remedied so easily had proper care been taken at the right time.

If a child is seclusive, shy and sensitive, if he is easily tired, irritable, nervous, has persistent headaches and takes no interest in the ordinary pursuits of childhood or shows a falling off in his school work, it is often best to take him out of school, for these are the premonitory symptoms which frequently lead to a precocious dementia. A short mental rest may restore him. It is best, if possible, to interest him in manual work. Let him work with his hands and put aside books. Farm work is ideal in such cases under proper supervision. At times, the agricultural and mechanical courses which are now being given in many colleges are well worth while in such cases. If the mental rest does not restore the child completely it is a great mistake to push him through school or college. His family should be satisfied for him to become a wage earner with his hands. Many are not fitted for higher education and there is always a place for skilled manual labor. It is an immensely poor investment to gain a diploma at the cost of a wrecked mental or physical organization. From my observation of cases of dementia praecox, I believe that many have been ruined by pushing them through school and college who could possibly have been saved had the early symptoms of a mental breakdown been recognized and had these warnings been heeded.

Puberty is the crucial time in the life of the child and this is often the time when many defects develop. At this time the child becomes a new being and every fibre of this new being pulsates with life and vigor. He does not understand his new sensations and hardly knows how to adapt himself to the new world which has now opened up to him. Parental restraints are set aside. Self-consciousness and self-criticism are marked. The youth is moody, introspective and broods. "Anxiety to do right exhausts the energy that should go to action. Trifles are augmented to mountains or debate with one's self as to what is right is carried so far as to paralyze action." Such an instability occurring as it does coin-

identally with the arduous requirements of school life is too much for many children, and frequently the combined demands on the physical and mental strength at this time cause a mental breakdown. The normal child is able to weather the storm unaided—the mentally unstable, unless a helping hand is extended, succumb, and either spend their days in an insane hospital or are able to take only a small part in life's work. The opportunity of the physician is especially great at this period. The sexual question should be robbed of its mystery, thus preventing the vague fears and surmisings which have pestered the soul of many a boy and girl, and, at times, have even been their undoing.

In conclusion, then, children should first of all be made as nearly bodily perfect as possible, but the guiding and controlling of that body should not be neglected if we are to have "fine human beings." In every way possible self-reliance and self-control should be taught and, above all, children should be taught to do things rather than to think of doing them. It is never wise to get into the habit of avoiding difficulties, but it is always best to meet everything that comes up in life with decisive action. The habit of decisive action can nowhere be better obtained than on the playground where the boy has to think and act quickly. For this reason, if no other, the play instinct should be cultivated. Wise municipalities are beginning to recognize as never before the value of play-grounds and this is a very hopeful sign for the youth of the future.

The child has been neglected in this age of commercialism, when every thought is bent towards the accumulation of money. Herbert Spencer has well expressed the condition when he says, "The raising of a first-rate bullock is an occupation on which men of education willingly devote much time, inquiry and thought—the bringing up of fine human beings is an occupation tacitly voted unworthy of their attention." This is short-sighted policy, for "if regeneration is ever to lift us to a higher plane, the adolescent ninus will be its main spring."

"The Civil War killed 205,700 people in four years. Consumption kills 800,000 in the same length of time. If 'war is hell,' what is consumption?"—*Report of Norfolk Department of Health.*

TUBERCULOSIS OF THE URINARY SYSTEM IN WOMEN.*

By EDWARD H. RICHARDSON, M. D., Baltimore, Md.
Associate in Gynecology, Johns Hopkins University.

It is incumbent upon every medical man to take stock at frequent intervals of his knowledge concerning the diseases which he professes to treat and to see if there are not some shop-worn goods encumbering the shelves of his mental storehouse that need to be discarded and replaced by a few novelties of real value. It is a very disquieting but healthful thought that while our knowledge of some diseases seems to remain perennially the same, of most of them it is constantly increasing, and what was but yesterday regarded as early symptoms must be considered late signs to-day. Especially is this true of the disease which we are about to consider, but that this fact is not appreciated by the profession as it should be is abundantly shown by the distressingly large number of advanced cases of renal and bladder tuberculosis applying for treatment at every hospital. If this brief summary of the present day knowledge of urinary tuberculosis in women makes the task of taking stock with reference to this disease easier for any one, I shall feel amply repaid for the time and labor spent in analyzing the extensive material upon which it is based.

Authorities are now pretty generally agreed that the vast majority of cases of urinary tuberculosis in women represent blood borne infection from some other focus in the body—situated it may be in the lungs, lymph-glands, joints or elsewhere—which first attacks the kidney and then the ureter and bladder secondarily. Primary tuberculous infection of the female bladder through the urethra is an exceedingly rare occurrence. The same may be said of haematogenous bladder infection. An occasional case occurs through direct extension from some nearby focus in the fallopian tube, the hip joint, the spine, or the bowel; but in these cases the involvement of the urinary system is a late complication. The question of ascending renal infection along the ureter from a bladder focus has long been a favorite topic of energetic controversy between both clinical and experimental observers of large experience. A few loyal and uncompromising champions of

this view still maintain that it is of frequent occurrence, especially with reference to involvement of the second kidney. Most observers, however, hold that while this is a theoretical possibility which now and then materializes, it is certainly exceptional in women, and that most of the reported cases admit of more rational interpretation on the assumption of independent and repeated haematogenous infection. No chapter in urology furnishes more profitable reading to the interested student than this controversy over the mode of infection in renal tuberculosis, and I regret exceedingly that time will not permit me to elaborate it more fully. But I must pass on to a brief consideration of the pathology of the disease.

There are two forms of renal tuberculosis—the *acute miliary*, and the *chronic localized*. The former is of no clinical significance, since it is but part of a generalized systemic tuberculosis, probably resulting from widespread dissemination of the bacilli through the blood as distinguished from the embolic mode of infection. Of the chronic localized form various classifications have been suggested based upon the pathological anatomy. For practical purposes it is sufficient to differentiate three main types.

1.—The *massive, caseous, or ulcerative*—happily described by the older writers as *renal phthisis*. Here the organ becomes converted into multiple cavities, which may communicate with the pelvis, are separated from one another by septa of disintegrating renal or fibrous tissue, and filled either with soft caseous or curdy necrotic material. This may go on to complete destruction of the parenchyma. The capsule and perirenal tissues not infrequently become involved, leading to extensive infiltration or abscess formation. If the ureter becomes permanently obstructed before the secretory portion of the kidney has been fully destroyed tuberculous pyonephrosis results. Finally the destructive inflammation may open the renal vein and lead to general miliary tuberculosis.

2.—The second variety begins in the pyramids and leads to ulceration of the apices of the papillae with marked haematuria as an early symptom.

3.—Then there is a third variety in which the kidney is studded with numerous firm grayish-white nodules varying in size from one to

*Read before the forty-third annual meeting of the Medical Society of Virginia, at Norfolk, October 22-25, 1912.

three or four millimeters in diameter, which show little or no tendency to ulcerate. These are probably embolic in origin.

Amyloid degeneration and chronic nephritis are frequently associated with the tuberculous changes.

In the ureter and renal pelvis the disease likewise manifests itself in three distinct forms: (1) the granular form; (2) the superficial ulcerative form; and (3) the massive infiltrative form, which extends to involve the deeper layers.

Total obliteration of the ureter is produced not by deep ulcerations, with extensive loss of tissue, but from superficial ulcers which destroy the mucosa and submucosa, leaving intact the muscle wall, the occlusion being effected through regenerative changes with scar tissue formation. The periureteral changes are interesting and exceedingly important, too, from an operative standpoint, but time will not permit a discussion of them here.

Again, in the bladder three distinct stages of the disease can be recognized and differentiated. First, there is the stage of granulation and superficial ulceration, involving only the mucosa and submucosa. The second stage presents deep ulcerations which involve the muscle layers. The third stage is that of complete destruction of practically the entire thickness of the bladder wall through coalescence and extension of the ulcers.

In many cases all three stages of the disease coexist, and the bladder wall may vary in thickness at different portions from a couple of millimeters to two or more centimeters. In nearly all of these cases the viscus is markedly contracted, and in some instances the whole bladder may be no larger than a hen's egg.

Thus we find a certain degree of uniformity in the manifestations of this disease in all parts of the urinary tract, whether it be kidney parenchyma, renal pelvis, ureter or bladder. Let me emphasize several points before dismissing the pathology: (1) that the disease in its early stages is a localized process, originating in the kidney through blood borne infection from some other focus of the body; (2) that certainly in over 90 per cent. of the cases it begins as a unilateral disease; and (3) that advanced bladder tuberculosis without involvement of one or both kidneys is rarely, if ever, seen in women; where-

as, extensive renal destruction with only slight invasion of the ureter and bladder is not at all uncommon.

Now then what should lead us to suspect the existence of this disease and how are we to establish the diagnosis? Fortunately, there is rarely any great difficulty if we are careful to obtain a complete and accurate history, and then resort to the various methods of examination now at our command.

In the first place there are certain facts empirically established that are well worth remembering. The disease is pre-eminently one of young adult life, and is by far the most frequent of all purulent renal affections of this period. It is surprisingly infrequent in phthisical patients, occurring much oftener in apparently healthy individuals springing from healthy families. Not only is it unilateral at the outset in over 90 per cent. of the cases, but the relatively infrequent and extraordinarily late involvement of the second kidney is a striking characteristic, that obviously has a most important bearing upon the treatment. The disease may long remain symptomless and be first observed through a mixed infection. On the other hand, while still confined to one kidney and in the early stages it may at any time give rise to any one or all of a characteristic group of symptoms which should lead to its prompt detection. These may be conveniently divided into (a) local, and (b) constitutional symptoms.

(a) Local symptoms:

(1) *Polyuria*.—This is a constant early symptom and is usually quite marked. It does not continue, however, after the disease is advanced and has caused extensive destruction of renal tissue.

(2) *Frequent and painful micturition*, present both day and night. Also an early symptom which often occurs without any involvement whatever of the ureter or bladder, but is associated especially with cases in which the disease has extended to the renal pelvis. The pain is referred along the course of the ureter and to the neck of the bladder, coming on at the end of urination.

(3) *Haematuria*.—Intermittent haematuria without obvious cause should always be suggestive of renal tuberculosis. It is surprising how many cases exhibit this as the first symptom. The amount of blood is not large, as a rule, but

it occurs continuously night and day for days and even weeks at a time, thus differing from the haematuria associated with calculus. This usually indicates ulceration of the renal pelvis or papillae.

(4) *Pyuria*—which is present in all cases at some time. The urine is pale, usually acid, but may become alkaline through a mixed infection with pyonephrosis, low specific gravity—generally below 1010—and contains albumin in amounts proportionate to the renal changes and the pus present. The bladder urine contains much more pus as a rule than urine obtained direct through a renal catheter or endoscope. The characteristics of the pus cells in the urine varies; they may or may not be degenerated. Mononuclear cells usually predominate, but 75 per cent. to 80 per cent. of polymorphonuclears is not uncommon. The contents of the urine from each kidney varies considerably at different stages of the disease, as one would expect. Remember that persistent acid pyuria from the sediment of which no organism grows on ordinary media demands that a diligent search for renal tuberculosis be made.

(5) *Pain* in the lumbar region over the kidney is not uncommon. It is dull and aching in character and may radiate along the ureter. It may be colicky in type, too, becoming extremely severe when the ureter is blocked by a blood clot or mass of caseous material thrown off from the disintegrating kidney.

(6) When palpable the diseased kidney is usually sensitive. It may be normal or irregular in shape, but is generally not much enlarged unless there is an associated pyonephrosis, when it may attain enormous size. Bear in mind, however, that the large, easily felt kidney may be the normal one that has undergone compensatory hypertrophy to meet the extra demands put upon it, whereas the diseased one may be represented by a shriveled sac of inspissated pus tucked deeply away beneath the ribs.

(7) *Tubercle bacilli* can be demonstrated in the urine in fully 80 per cent. of the cases if persistent and repeated search is made from the twenty-four hour specimens. The proper way to search for them is to examine a couple of slides prepared each day from fresh specimens instead of a number of slides from one specimen. Preliminary renal massage with induced diuresis may cause a shower of them to appear

in the urine, and is a point worth bearing in mind. Positive animal inoculation is often helpful. It demonstrates conclusively the presence of tubercle bacilli in the urine. But remember that tubercle bacilli may be present in the urine simply as a product of renal excretion when the entire urinary system is absolutely free from the disease; so that a single demonstration alone is not conclusive proof of urinary tuberculosis.

(b) Constitutional symptoms.—The most important of these are:

(1) *Irregular fever* with evening exacerbation. Blocking of the ureter is usually accompanied by a sharp rise of temperature which continues for several days, probably due in part, at least, to absorption of toxins from the renal pelvis.

(2) *Night sweats* are not uncommon in this, as in other forms of tuberculosis.

(3) *Emaciation*, which is often progressive.

When the disease invades the bladder its presence is very promptly heralded by the symptoms of cystitis. There is frequent, urgent urination day and night, associated with great pain both during and especially at the end of the act. Emptying the bladder affords little or no relief, and, as the disease advances, finally the stage is reached when marked strangury and tenesmus dominate the symptom-complex. The viscus becomes extremely intolerant and irritable; it robs the patient of all restful sleep, causing constant distress, and often, indeed, the most excruciating pain. These symptoms may be out of all proportion to the extent of bladder involvement.

Cystoscopy is an invaluable aid in enabling us to determine accurately certain important points: (1) to make a positive diagnosis; (2) to determine the extent, location, and degree of bladder and ureteral involvement; and (3) to investigate the functional activity of one or both kidneys.

In the advanced cases the bladder is, as a rule, so intolerant of instrumentation that this examination can not be successfully conducted without general anaesthesia, but in the early stages—where it is of the greatest value—no difficulty whatever is usually encountered. The necessity of general anaesthesia, however, is in itself no contraindication to the cystoscopic examination being made, and should be employed

whenever necessary. Generally speaking, the bladder does not present a specific picture in the late stages of the disease; the tuberculous nature of the ulcers being conclusively shown only when their relationship to tubercles can be determined, and the latter are not very commonly found. When observed they appear, either discrete or grouped about the trigonum and ureteral orifice, as minute, slightly elevated, grayish-yellow nodules surrounded by a zone of hyperaemia. They are very closely simulated in appearance by little nodular formations and minute pearly vesicles filled with grumous materials which are quite commonly observed in a variety of bladder conditions; but these lack the characteristic areolar redness, and are usually indiscriminately scattered over the bladder walls. There may be a diffuse reddening and oedema of the bladder lining or such localized areas may be separated by patches of healthy-looking mucosa. Mixed infections of the bladder are not uncommon in women, producing an acute diffuse cystitis which causes the walls of the viscus to be covered with mucus, pus, or incrustations that quite obscure the associated tuberculosis. This is readily cleared up, however, under the ordinary treatment with irrigations, etc., which on the contrary serve only to aggravate the tuberculosis. Of distinct diagnostic value is the fact that tuberculous ulcers are not widespread in the bladder as a rule, but tend to localize about the trigonum and ureteral orifices. They present an irregular outline with elevated, thickened and undermined edges surrounding an unhealthy base which is covered with dirty necrotic material. A zone of dense infiltration is constantly observed around them. One characteristic is the absence of incrustations or phosphatic deposits so commonly found on non-tuberculous ulcers.

If the case is examined when the disease is still confined to the region of one ureteral orifice, pictures are seen which may be considered practically diagnostic. Thus ulceration confined to this region indicates that the kidney of that side is almost surely diseased. A puffy red ureteral orifice in an otherwise healthy-looking bladder is very suggestive. So also is the retracted, crater-like ostium. Then again the orifice may be enclosed in a circle of little vesicles, of uniform size and symmetrically arranged—the so-called bullous oedema—which is considered pathognomonic of descending renal tubercu-

losis. As the ulceration and infiltration advance of course the ureteral orifice becomes distorted into a variety of shapes, becoming irregular in outline and often gaping widely. Not infrequently the diseased ureter is visible for two centimeters as an elevated ridge obliquely traversing the wall of the viscus.

Authorities are still divided on the question of catheterizing a sound ureter through a tuberculous bladder for the purpose of determining unilateral or bilateral renal function. Some of the world's most conspicuous leaders in this field who have consistently practised this procedure for years in large numbers of cases contend that they have never seen ascending renal infection follow it. On the other hand, they admit this as a theoretical possibility, and specifically advise that the catheter should never be introduced more than one or two centimeters up the healthy ureter. In reaching a decision with reference to this point it must be borne in mind that it would be a very difficult matter to establish or refute the assumption of infection of the healthy side through introduction of tubercle bacilli into the lower ureter by means of a contaminated renal catheter. The disease being so insidious in its onset such a case would not likely again consult the surgeon following recovery from removal of the diseased side until symptoms manifested themselves in connection with the remaining kidney. And if examination disclosed this kidney to be tuberculous, the case would much more likely be classified as one of independent haematogenous infection than as one of ascending infection following the introduction of tubercle bacilli by the operator at a previous ureteral catheterization some years ago. The literature contains very dogmatic statements on the negative side of this question but these are nothing more than the recorded impressions of different observers. I know of no scientific investigations that warrant this conclusion. We do know, on the contrary, that when the mechanism which closes and safeguards the ureteral orifice under normal conditions is interfered with through adjacent ulceration and infiltration of the bladder wall, so that during vesical contraction the ostium gapes and permits reflux of infected urine from a tuberculous bladder, ascending renal infection sometimes occurs. Furthermore, the occurrence of ascending renal infection following the simple introduction of tubercle bacilli into the lower end of

a healthy ureter has been repeatedly demonstrated experimentally. Consider, too, in this connection that the introduction of a ureteral catheter, however skilfully done, always produces microscopic and oftentimes macroscopic trauma to the mucous membrane, and that there exists a sufficiently free anastomosis between the intrinsic ureteral vessels and those of the bladder and kidney to permit direct communication through it, thus affording a circulatory channel by which the organisms may be promptly swept into the kidney.

Now, in view of these facts, few of us would elect to have a catheter passed through a tuberculous bladder into the only sound ureter or kidney that we possessed, notwithstanding the fact that some eminent authorities have put themselves on record as never having observed ascending infection follow this procedure.

On the other hand, it is a matter of the greatest importance to determine as accurately as possible the functional capacity of the supposedly sound kidney before removing one known to be tuberculous. It is not within the scope of this paper to discuss the relative merits of the various methods at our disposal for doing this. In women the problem is greatly simplified through the use of the Kelly cystoscope with air distention. With this instrument we are able to obtain a pretty accurate idea of the condition of the presumably healthy side without introducing a catheter into the ureter at all. Valuable information may be obtained in several ways. Thus with the patient in the knee-chest posture and the bladder fully distended with air, by simply placing the end of the cystoscope directly over the ureteral orifice so that the urine spurts into the tube we can in a few minutes collect sufficient urine for chemical, bacteriologic and microscopic study. So too we can observe directly the exact time of appearance in the urine of indigo-carmin or methylene-blue that has been given hypodermically. Of still more value is the method of obturating the ureter of the diseased side with a large flute-end catheter, so that no urine flows into the bladder from this side and then after thoroughly washing out the bladder, to collect the urine from the healthy side transvesically. This is not reliable for bacteriologic study, but is an excellent and satisfactory method of applying the functional tests—the most valuable of which is the phthalein test—to this class of cases. Moreover, an experienced observer who knows

how to make due allowance for bladder contamination learns much of practical value from the gross appearance as well as the microscopic and chemical study of specimens thus obtained. If circumstances seem to justify the introduction of a catheter into the sound ureter, it can be most safely done through the open cystoscope which permits one to cleanse and partially disinfect the ureteral orifice before the catheter is inserted.

This comparative study of the urine collected from the two sides, by volumetric, colorimetric, bacteriologic, chemical and microscopic methods, is of the greatest help in establishing the diagnosis, revealing the extent of the disease, and the competency of the non-infected kidney. Let me emphasize that all this can be done in women, in the vast majority of cases, without catheterizing the healthy ureter.

It becomes evident from what has been said that the diagnosis of urinary tuberculosis in women should not be a difficult matter.

To summarize, a careful history will often bring out protracted exposure to the infection followed in time by some or all of the symptoms enumerated above; renal tuberculosis is the most frequent of all suppurative diseases of the kidney—from 20 to 40 years of age; unexplained cystitis, even of a mild grade, in a young person should of itself be very suggestive of tuberculosis, because in other forms—such as gonorrhœal; that due to infection with colon bacillus or other common organisms; or associated with tumors, calculus, foreign bodies, stricture of the urethra, cystocele, etc.—the cause is readily demonstrable. Thus the insidious onset becomes of distinct diagnostic value.

The general physical examination will not infrequently disclose a primary focus elsewhere in the body. Locally one finds in many cases a sensitive kidney; a sensitive ureter on abdominal palpation just over the point where it crosses the pelvic brim; on vaginal examination the thickened, beaded ureter, easily identified, traversing the antero-lateral fornix; and the infiltrated hypersensitive trigonum. Measuring the bladder capacity we find it greatly reduced—a contracted, irritable viscus, intolerant of any instrumentation; a cystitis resisting or even aggravated by treatment with irrigations, especially if silver salts—so valuable in other bladder infections—are used. Then the persistent acid pyuria from which no organism grows on

ordinary media, associated with the other urinary characteristics already described. The cystoscopic findings, and the impaired kidney function revealed through the comparative and functional tests. Also the radiographic disclosures, often so strikingly brought out through the preliminary introduction into the renal pelvis of some substance impervious to the rays, such as 10 per cent. collargol. Finally, the use of tuberculin as a diagnostic measure in properly selected cases. If after exhausting all these measures, the surgeon is still uncertain as to the competency of the supposedly healthy organ, it is a perfectly legitimate procedure to investigate it directly and thoroughly through an exploratory lumbar incision before removing its diseased fellow. This course, indeed, is enthusiastically recommended by some surgeons in all cases where nephrectomy is to be undertaken.

The treatment of the disease has already been indicated. No matter at what stage it is discovered, nor how extensive the bladder involvement, but provided only that it is unilateral so far as the kidneys are concerned, nephrectomy—nephroureterectomy, if the ureter is extensively diseased—should be promptly performed. If one kidney is only slightly involved and the other practically destroyed or converted into a pus sac, it should still be removed and the patient's health will be benefited as a result. If there is still some secretory tissue left in the worse damaged kidney of a patient with advanced bilateral disease, nephrostomy with establishment of permanent lumbar fistula is a useful palliative measure. Remember, in determining the treatment of a specific case that the associated albuminuria so commonly found on the non-tuberculous side generally disappears after removal of the diseased side. I am convinced that it is a dangerous thing to temporize in the early cases by treating them with tuberculin alone or in conjunction with other therapeutic, hygienic and climatic measures in an effort to avoid operation. Spontaneous healing of renal tuberculosis has not been satisfactorily demonstrated, so far as I know, unless the apparent healing following extensive destruction of the organ with its conversion into a sterile pyonephrosis or sclerotic kidney be so regarded. On the other hand, there is no scarcity in the literature of cases coming to autopsy after weeks and months of treatment with tuberculin, but, in

every instance that has come to my notice, not only was there complete absence of any attempt at healing in the kidney, but fresh foci of the disease were repeatedly encountered. The advocates of conservative management of the incipient cases have not been able, therefore, to produce convincing proof in support of their claims, and consequently some of the most ardent of them have deserted within the past few years and have come over to join the ranks of the majority who believe in early and radical operation, and whose results certainly seem to leave no doubt as to the wisdom of this course.

After removal of the diseased kidney in cases of unilateral infection, the bladder involvement, even though extensive, will heal spontaneously in nearly all cases. This may be hastened by appropriate treatment. If only a single focus exists in the bladder, or if there are multiple discrete ulcers, it is helpful to cauterize these with the electric cautery or strong silver nitrate. It is still better to excise the ulcerated area when feasible. If the disease is too extensive to be treated in this way, instillations of iodoform olive oil emulsion, or carbolic acid, or of bichloride of mercury are of distinct value. The last named is probably the best, beginning with weak solutions and small amounts which are gradually increased until 50 cc. of a 1 : 10,000 or 1 : 5,000 strength can be retained. These should be given twice a week and the bladder should not be distended. Carbolic acid, too, is very highly recommended. It should be used as advocated by Rovsing, who, after washing out the bladder, introduces 50 cc. of a 6 per cent. solution, which is left from three to four minutes and then removed. This is repeated until the solution returns clear. At first the instillation is given at intervals of one, two, three weeks to a month.

Both the bichloride and carbolic instillations are exceedingly painful, and morphine should be freely used when they are given. The interval pains, too, should be controlled, so that the patient may obtain some rest. For this purpose opium and belladonna in the form of suppositories is the best medication. The usual hygienic and dietetic measures adaptable to tuberculous cases in general should also be systematically employed in patients suffering from urinary tuberculosis, whether operated upon or not. Aside from tonics and sedatives, internal

medication is of very little value; such urinary antiseptics as urotropin, salol, salicylic acid, oil of sandal wood, etc., failing utterly, unless there is a mixed infection. Casper says that the only rational internal remedies are creosote, guaiacol carbonate and ichthyol, either of which he allows without restriction as long as the patient can tolerate them. He recommends that these drugs be given as oil enemata, because they are so unpalatable, one ounce to seven ounces olive oil, and inject a small syringeful twice daily. Mineral waters are useful in diluting the urine and thus rendering it less irritating. In cases of bilateral disease, in inoperable cases, and as a post-operative measure in advanced bladder tuberculosis, tuberculin should certainly be given a cautious trial therapeutically. The general condition of the patient will usually improve following its use, due, Wildbolz thinks, to its fortifying the organism against the toxins of the bacilli rather than stimulating local healing processes. In the hopeless cases with intolerable bladder pain, permanent vesical fistula, or complete deflection of the urine from the bladder by dividing the ureters and bringing them out through lumbar incisions are most grateful palliative measures.

Pregnancy quite certainly aggravates renal tuberculosis. Generally speaking, if the disease is unilateral, nephrectomy should be done and the pregnancy be allowed to go on uninterrupted, but bilateral involvement is an indication for abortion.

In conclusion, let me urge that we banish forever from our minds the old symptom-complex of urinary tuberculosis, which indicates only an advanced stage of the disease; and let me emphasize that we are magnificently rich in the possession of accurate knowledge and methods of investigation that permit the early recognition of this malady, so that even the isolated practitioner, if he but familiarize himself with the facts which I have tried to make plain in this brief discussion, need no longer be deceived by the stealthy attack of this treacherous and deadly foe.

216 East Preston Street.

The City School Board of Fredericksburg, Va., has accepted the offer of the physicians and dentists of that city to give their services free for the medical and dental inspection of its schools.

THE NERVOUS AND MENTAL SYMPTOMS OF PELLAGRA.*

By BEVERLEY R. TUCKER, M. D., Richmond, Va.
Professor of Neurology and Psychiatry, Medical College of Virginia.

At the second triennial meeting of the National Association for the Study of Pellagra, October 3-4, 1912, men of prominence from all over the United States and elsewhere read papers. The papers were well arranged and interesting, and some of them were of great importance.

As regards etiology, the maize theory seems to have lost ground, although it still has some advocates; that the disease is transmitted by insects had many followers and one would become "almost persuaded" after hearing a paper assigning one or the other of these pests as the cause of pellagra. The sand fly, the stable fly, the flea, the mosquito, the bed bug and the louse were each separately indicted. Various bacteria and toxins were thought by others to be the cause, while food stuffs, especially carbohydrates had their advocates.

After reviewing them all, probably the strongest and most logical suggestion of the cause of pellagra was that expressed by Dr. Babcock in a discussion. He made an analogy between beri-beri, sprue, scurvy and pellagra and advanced the idea that pellagra was due to a monotonous diet in which there was a deficiency of some food element and that this diet with the deficiency affected the debilitated, whether their debility was caused by tuberculosis, insanity, alcohol, syphilis, or what not.

The more one thinks of this suggestion the stronger is its appeal. This could account for the non-febrile character of the disease, for its occurrence in institutions and in rural districts among the poverty stricken, for its occasional occurrence among the better class who have through fear of dyspepsia or some other cause reduced their diet to only a few articles, for its apparent seasonal recurrence, as there is much less variety of diet during the winter, and for its wide spread over the country. It appears that pellagra does occur in the North as well as the South, and a number of cases have been reported from institutions in Illinois, Rhode Island and elsewhere. It is possible, if the diet

*Read as part of a Symposium on Pellagra before the forty-third annual meeting of the Medical Society of Virginia, at Norfolk, October 22-25, 1912.

deficiency idea is true, that a warm climate may be a factor in conjunction with the diet or that the institutions in the North are better endowed and can give a greater variety of food or that the character of the food in these institutions does not have the special deficiency that food in the South has. Dr. Babcock cited some remarkable instances of the occurrence of beri-beri in both pellagrins and non-pellagrins when corn was eliminated from his institution in Columbia and rice substituted in its stead. Of course this suggestion has not yet been proven, but we hope Dr. Babcock will push his investigations to a definite conclusion, for, if this is true, pellagra will become a preventable disease.

In regard to pathology, Drs. Singer and Pollock brought out some interesting findings at this meeting relative to a central neuritis. Harris has found changes in the chromophilic cells of the cortex and degeneration of the Purkinje cells in the cerebellum. Spiller has found degeneration in the cells of the cerebrospinal axis which he thinks is due to a toxic or infectious substance.

Nervous and Mental Symptoms. We shall now speak especially of the nervous and mental symptoms of pellagra. Your attention is called to the fact that a pellagrin may have nervous symptoms without definite mental ones, especially in the early stages of the disease. It is best not to follow the custom of intermingling the nervous and mental symptoms, but to segregate them as much as possible, although they may, and usually do, co-exist. Thus, in the study of these symptoms in 88 cases, we find that 100 per cent. showed nervous symptoms and 95 per cent. mental symptoms, the nervous manifestations usually appearing first. Several of the cases had been nervous for years, but their symptoms increased when pellagra developed.

Neurological Symptoms. Among the neurological symptoms we have restlessness in 84 per cent., insomnia in 88 per cent., muscular weakness in 92 per cent. of the eighty-five cases tested, and muscular wasting was noticed about in proportion to the loss of weight, which was practically constant. Local atrophies or dystrophies were not noticed. Vertigo was present in 76 per cent. of eighty-one cases. Headache was present in 60 per cent. In regard to sexual power the question was answered in only about

one-third of the cases, and it was lost in 25 per cent. of these. Tremors were noted in 53 per cent. of the cases. The tremors chiefly involved the hands and tongue. Cramps were noted in 50 per cent. of the cases and were variously located in the abdomen, legs, arms, thighs and backs. Exophthalmos was noted in 3 per cent. of the cases and seemed to have no special reference to the disease.

Of the more organic symptoms, anesthesia of areas of the cutaneous surface was noted in 20 per cent. of sixty-nine cases tested. The mental condition of many of these cases precluded definite interpretation. Tenderness of the spine to percussion was noted in 20 per cent. of fifty-four cases tested. Contraction of the limbs was noted in 5 per cent. of the cases and was usually transient. Trophic disturbance excluding cutaneous lesions was noted in 13 per cent. of the cases and was chiefly manifested by roughening and thickening of the nails. Paralysis occurred in 7 per cent. of the cases; three of these showed paraplegia, one hemiplegia, one monoplegia and one paralysis of the sphincter ani. Romberg symptom was present in 57 per cent. of sixty-six cases tested. Ataxia was frequently present in severe cases, but not numerically recorded. Knee-jerks were present in 88 per cent. of seventy-four cases tested, in 62 per cent. of these they were exaggerated on both sides; in one case they were exaggerated only on one side. In nine of the seventy-four cases the knee-jerks were absent; in seven they were decreased. Ankle clonus was not regularly tested; however, I have tested it in many cases which had exaggerated knee-jerks, and found it not present. The same may be said of the Babinski phenomenon.

The pupils in size were normal in 55 per cent. of the cases, contracted in 20 per cent., and dilated in 25 per cent. In only two of these cases were they noted to be unequal in size. The pupils reacted normally to light in 83 per cent. of 79 cases tested. Reaction to light was absent in 6 per cent., and sluggish in 11 per cent. Speech difficulty occurred in 40 per cent. of the cases. In two cases aphasia was noted, in six mutism, and in the rest speech was described as mumbling, slurring or weak. Investigation of the special senses showed that smell was affected in 23 per cent. of the cases, in all of which it was diminished. Hearing was

affected in 15 per cent., a diminution only being noted. Taste was diminished in about 50 per cent. of the cases, but this test was obscured by the almost constant and often severe stomatitis. Touch changes were noticed when the patients touched objects with their finger balls in 29 per cent. of the cases, being diminished in all except two cases in which it was increased. The only sight changes were errors of refraction. Neither diplopia nor photophobia were noticed.

Psychiatric Symptoms. A study of the mental condition of these patients showed emotional irritability manifested either by excessive weeping or outbursts of temper in 53 per cent. of the cases. Depression was present in 84 per cent. of the cases and in about half of these the patients were said to have ceased laughing since the onset of the attack. Memory was distinctly poorer than usual in 74 per cent. of the cases. Delusions and hallucinations were present in about 20 per cent. of the cases. Most of the delusions were those of persecution and were unsystematized, and the hallucinations were the usual ones of sight and sound. These symptoms are much more common among institutional cases. Apprehension, varying from anxiety about their condition to delusions of impending danger, was present in 100 per cent. of the cases. Homicide was not attempted in any of these cases, but suicide was committed by one, attempted by two, and threatened by six.

Nervous Syndrome. The nervous syndrome of the pellagrin may then be said to consist of restlessness, insomnia, muscular weakness and vertigo as almost constant symptoms, with headache, tremors, cramps, changes in the knee-jerks and pupillary reflex, sway in station and slowness of speech occurring in about one-half of the cases, while areas of cutaneous anesthesia, loss of sexual power, tenderness of the spine and diminution of smell and of finger touch are found in about one-fourth of the cases. Trophic disturbances, contraction of the extremities, ataxia and paralysis sometimes occur. Many mild or early cases only show restlessness, weakness, insomnia and vertigo, while all of the severe cases with which I am familiar show deep reflex, pupil and special sense changes before death.

Mental Syndrome. The mental syndrome of these non-institutional cases shows apprehension, depression, emotional irritability and failing

memory as common symptoms, with delusions and hallucinations and suicidal tendencies not infrequent. The mental symptoms, except apprehension, may be absent in mild or chronic cases and severe cases may occasionally go on to death without developing delusions or hallucinations. All of the severe cases show depression, emotional changes or failure of memory. The severe mental symptoms somewhat resemble melancholia, but they are usually accompanied by neurological signs not found in melancholia; the melancholia depression attitude is not often assumed, the agitation shown by wringing the hands is not seen and delusions of unworthiness are not present. Some of the mental states are said to resemble mania, but I have never, in these non-institutional cases, seen the flight of ideas, the chaotic delusions, the changes of personality, the exaltation or the increased strength so common in acute mania.

In fact, neither the nervous nor mental syndrome of pellagra corresponds to any known nervous or mental disease, nor, indeed, do they hew closely enough to any one line to form a true clinical entity, but appear to be due to the action of some general toxin or organism. This opinion, as far as mental symptoms are concerned, agrees with that of most of the pellagrologists, who have studied the disease in insane asylums. I have not been able to find a previous attempt to more or less segregate the nervous from the mental symptoms. This attempt was thought justifiable after observing many cases of mild chronic pellagra for several years which did not show any real insane manifestations.

After due consideration we may conclude that pellagra presents no distinct form known or unknown of nervous or mental disease except what might be considered a general toxic neuro-psychosis.

208 East Franklin Street.

SKIN SYMPTOMS AND TREATMENT OF PELLAGRA.*

By THOMAS W. MURRELL, M. D., Richmond, Va.

The appearance of the pellagrous eruption is not in keeping with the symptoms of the disease elsewhere in the body. The internal manifestations of pellagra are entirely those of

*Read as part of a Symposium on Pellagra before the forty-third annual meeting of the Medical Society of Virginia, at Norfolk, October 22-25, 1912.

a profound systemic disturbance, but the skin lesions have all the appearance of being due to an external irritant. These lesions resemble nothing so much as dermatitis solaris, acute sun-burn, and this resemblance is so close that from the eruption alone a differential diagnosis could not be made.

As you have all the gradations from simple reddening to bleb and bullae in sun-burn, so do we have in pellagra, and the locations are usually those where sun-burn would be expected.

The chief characteristic of the pellagrous eruption is its location and sharp demarcation. The sites of selection are the back of hands and wrist, forehead, temples, prominences of the cheek, and over the back of the neck. It also frequently occurs below the knee. The eruption is usually not painful, though many complain of a stinging, burning sensation: just such subjective symptoms as one would suspect from the appearance of the eruption.

What could be the cause of an eruption limited usually to such parts of the body as are unprotected? We cannot dismiss this as a freak of the disease, for there seems to be a close relationship here to the effect of the sun's rays.

Certain observers have claimed that they were able to produce the eruption in cases where it had not appeared by exposing the patient to intense sunlight and another author states his belief that sunshine is an actual harm to the patient. Experiments conducted by Adler, on rabbits, would suggest that the pellagrous eruption is a true sun-burn, but the burning of devitalized skin. His experiments show that fat intoxication will produce a sensitive skin and it is not unreasonable to believe that such an intoxication takes place in pellagra, sensitizing the skin so that it is inflamed by the actinic ray of the sun. The color of the eruption in pellagra varies with the pigment status of the individual. All eruptions are redder in blondes than in brunettes. In a light blonde the pellagrous lesion is a deep red, but in the negro it is black. The knuckles, particularly, of a negro pellagrin are black as ebony.

There is little use in going into a differential diagnosis of pellagra, for its characteristics are very marked. This, however, does not apply to the diagnosis of the disease as a whole for we are never justified in a diagnosis of pellagra by one particular symptom. The

diagnosis is made by the association of symptoms.

The treatment of the skin lesions is entirely symptomatic.

We use the simplest means for soothing irritation, protect them from the sun, and, if there are bleb formations prevent their being infected.

The treatment of pellagra may be divided in two classes,—that directed to the alleviation of symptoms, and that directed to the annihilation of an unknown cause, supposedly of microbic origin.

One of the many difficulties which confronts us at the very first is that of rightly attributing results to the treatment we use. Many cases improve under suggested treatment and as many more will improve without treatment. So that among many of our foremost students of pellagra, there is a decided therapeutic nihilism. Certainly it seems that in the past the treatment of symptoms alone has yielded but scant result, and the percentage of cures and deaths have been but slightly affected by such measures. This being so, we are justified in being ever on the watch for some measure that will directly effect the course and cause of this disease.

Pellagra is undoubtedly a disease entity. While it is possible that the symptoms presented may be the result of toxæmia due to the ingestion of diseased food, yet the recognized order of symptoms and the increasing prevalence of the disease, make the majority conclude that pellagra is not a toxæmia, but an actual disease, probably contagious, whose cause is unknown.

In no circumstance does the phrase, "As many men, as many minds," seem to fit so well as in the treatments advocated for this disease. One man evolves a theory and gives a drug that his theory calls for. Another gives a drug and from its action evolves a theory.

The worst of it is that we cannot approve or disprove the statements made. The best that we can do is to summarize the general results and from them make certain deductions.

The treatment of pellagra may be divided into *climatic*, *dietetic*, *symptomatic* and *specific*.

Bass and others have called attention to the improvement in pellagrins due to change of climate. This is not simply a change of resi-

dence, but a move to a colder and possibly a cloudier county. This, of course, refers to the supposed deleterious action of sunlight.

The dietetic treatment is hardly to be termed a treatment, but rather a dietary. It has been recognized that pellagra in common with other wasting diseases demands a dietary easily assimilable, nutritious, and above all, unirritating to an inflamed intestinal mucosa. So we would avoid all wood vegetables such as sweet potatoes, celery, asparagus and the like. No indigestibles should be allowed and unfortunately sweet milk comes under this head in pellagra. Alcohol is to be interdicted and with this the alcoholic extracts of beefs.

On the other hand, tender beef is well borne, as are eggs, soft boiled. Buttermilk can be freely used and the starches, provided they are thoroughly cooked. As to whether corn and corn products are to be avoided is a matter as to the acceptance or denial of the corn theory.

The symptomatic treatment is simply that along general medical lines, except one measure that is surgical, viz., intravenous transfusion. Cole, of Mobile, has employed this procedure in thirty-one cases, and Pollock and Curtis have reported a series of twelve cases. It would seem that patients not actually moribund are greatly benefited by this operation, and cases that were apparently retrograding have been, so-to-speak, tided over a crisis. The conclusions of Pollock and Curtis are that the benefit derived is about the same as that obtained from transfusion in any wasting disease. The fact that it is a delicate surgical operation makes it of scant use to the thousands who are afflicted.

By specific treatment we mean a treatment designed to act on the unknown cause. The drugs that have been used here are mainly urotropin, and the arsenical preparations.

Bowling, believing the disease of intestinal origin, uses chlorine water, freshly prepared, and castor oil for elimination. He considers this last as the one best remedy for the diarrhoea.

The arsenical preparations most used are atoxyl, sodium cacodylate, soamin and salvarsan.

It is certain that atoxyl has done good and this has been the basis for the use of these arsenical preparations which have evolved from atoxyl, particularly, soamin, and salvar-

san. The use of salvarsan, or rather the successful use of salvarsan would lead one to conclude that pellagra is a disease entity, and moreover, due to some organism allied to spirilla.

Dr. E. H. Martin, Hot Springs, Ark., has probably done more work along this line than any other investigator, and his results are exceedingly interesting. There is a positive note and an optimism in his paper seen in few publications on pellagra. He has treated 83 cases with these two drugs, but only uses 38 cases to base conclusions on. Eleven of these were treated with soamin and 27 with salvarsan. Of the 11 soamin cases there were 8 recoveries and 2 deaths. The recovery cases occurred—4 during 1910, and 4 during 1911. The 27 cases from salvarsan show 20 apparent cures, 3 doubtful, and 4 deaths. Seven of the presumed cures were treated in 1911, and thirteen in 1912, nine of whom were discharged previous to August 1st. The doses of the drug given varied from five to twelve. These were given at intervals of seven to ten days at a ratio of one gram of the drug to every twenty pounds of weight of the patient. Dr. Martin is strongly of the opinion that reactions from salvarsan in luetic and pellagrous conditions are identical and indicative of drug action on an unknown cause. He continues to give the drug until no reaction is produced. His opinion is certainly worth consideration since he bases it upon 1,100 intravenous administrations, and believes that small and increasing doses should be used because of the possible danger of the drug.

Of his four deaths, three of them were practically insane, but there seemed to him a connection between the reaction of the drug and the subsequent meningitis which produced death. It is true that two of the deaths were alcoholics who insisted on drinking even while under treatment, but while one consultant believed death due to alcoholism, he believed it to be essentially pellagra. These four cases were very far advanced and death here would have been expected under ordinary conditions with or without treatment. He considers soamin and salvarsan to be equally effective, the first to be given weekly from eighteen months to two years with three week intervals between each course of 100 grains. The disappearance of symptoms is slow as compared with the miraculous disappearance in the majority of cases treated with salvarsan. In the

average patient six doses of salvarsan can be given in five weeks with most happy results.

It is this quick disappearance of symptoms that gives the greatest food for thought. We use urotropin, chlorine water, atoxyl and whatever drug may be recommended, and we get our cures, symptomatically at any rate, but it is almost impossible to say whether such a case is being influenced by the drug for there are other cases treated symptomatically which seem to get well with equal rapidity. With the use of salvarsan there is a decided difference. Symptoms are ameliorated with surprising quickness and with every evidence of a direct drug action. Of course, the meat of the question depends upon whether it is a cure. Many men will assert cases of pellagra as cured when all they can possibly say is that no symptoms are present. We may not have a relapse for three years and certainly such a case is cured as far as we know, but our knowledge is small, and absolutely definite statements are somewhat out of place. If any drug has produced a cure in pellagra, it would seem that salvarsan is that drug. Its intravenous use is not difficult though its administration requires some skill and a great deal of care. Undoubtedly it is worthy of further investigation.

THE DANCE OF THE RED DEATH.*

By ROY K. FLANNAGAN, M. D., Richmond, Va.

Director of Inspections, Board of Health of Virginia.

The Announcement.—With the riot of disabement, misery, rottenness and death following in the wake of medical supineness, and general health department neglect of the all-pervading disease, gonorrhœa, and the insidious hydra-headed scourge, syphilis, it has seemed to me that nothing less than a saturnalia-like exposition of the subject would be likely to have any effect, or make a lasting impression. Too lurid a title nor too horrid a picture is impossible to show the things which are happening under cover in this state—and happening with my connivance (passively) and with yours. I propose to clear my skirts, so far as I can. What about you?

The Prelude.—Some writer has spoken of venereal disease as the "Red Plague," but such a characterization is too mild for the impression

I wish to leave on your minds; so for the purpose of this paper at least it shall be "The Red Death."

If the drama presented has little about it that suggests the modern idea of the dance, it would be well to reflect that it is the diabolical activity of the disease that furnishes the topic—not the poor victims of its deeds. If any are inclined to smile at the simile, smile if you please—but listen.

The First Movement.—In only one city of this State are there any statistics at all regarding the prevalence of venereal disease among the population, and these figures necessarily are far short of the actual facts. Consequently, conclusions based upon data from this single source may not be entirely satisfactory to the scientific mind. They are, however, the best we have near home, and I believe will fairly point the magnitude of the problem before us, which problem, as honest men and decent citizens, we must meet. (I waive the character we bear as conservators of the health of the people.)

In the city of which I speak, which has approximately 10,000 people, from January to January in the past three years there have been 365 new people each year reported by the physicians to the health officer as suffering from gonorrhœa and syphilis—one new case each day, not to mention the unnumbered individuals who never go further than the corner drug store for treatment.

Second Movement.—At thirty-six plus per thousand, Richmond has 5,000 cases; Norfolk, 2,800; Portsmouth, Roanoke and Lynchburg each 1,200 yearly. The cities of Virginia with a total population of 500,000 yield at this rate 18,000 cases. If we count the rest of the State with its million and a half of people as giving one-fourth as great a percentage, then the grand total will be over 30,000 cases each year. Is there any other disease that will touch it in magnitude? What a colossal epidemic have we here on our hands! And what, may I ask, are you doing about it? What are you going to do? So much for figures.

You are thoughtful men. May I not ask you for a little while to look upon the real picture?

Figure 1.—A vast stage is set, the curtain rises. Boldly, but still with here and there a flush of shame upon a face, forth from a mighty concourse step an array of young men. Hear

*Read before the third annual meeting of the Virginia Public Health Association, at Norfolk, October 23, 1912.

the spokesman of that company, so confidently secure in its numerical strength:

"We confess to having tempted the "illicit rove" and have paid the well nigh inevitable penalty—but what of it? The men who appear *not* with us are but a paltry 15 per cent. of the whole; and shall we hide our faces? Your daughters must marry us or they will go unwed. Our fathers sang in our hearing:

"Come, all young men, with your wicked ways
And sow your wild oats in your youthful days,"

and we, their children, are but chips from the old block—neither better nor worse than they. Where we live a "red light" house stands open after dark, and men of place and prominence pass by, recognize, but say no censoring word. Why should we not enter that house and make merry? You *tell* us to be good, but we see you winking the other eye in the opportunities you offer for us not to be good. Cure us if you can; but, cured or not, we will go on as before."

Interlude.—This is Exhibit A. What answer will we as men, as doctors, or as health officers, make? We wink at the social evil; we condone the double standard of morals; we dismiss the whole matter as a insoluble problem; we help the syphilitic to hide his leprosy, and we wrap the cloak of the Hippocratic Oath about our virtuous heads and claim credit—actually claim credit for keeping our mouths shut about a luetic bridegroom's pre-nuptial sins and their consequences.

Have we no daughters to come against this proposition? Unless the medical profession gets busy, the 70 per cent. of abdominal operations in women will still continue to be due to the gonococcus, and what assurance have we that the "apple of our eye" shall not be among these "Tributes to the Minotaur?"

Figure II.—We have no answer ready, so the young men retire, and in their places step the women.

"She who paints her Eyes and tires Her Head,
And gibes and mocks the People in the Street,
And fawns upon them for Her thriftless Bread—
Accursed is she of Eve's daughters—She
Hath cast off Prudence, and Her End shall be
destruction...."

The seal of death is therefore stamped upon the faces of those who now in silence and unspeakable sadness stand where their male prototypes have so blatantly held their own.

Why are they dragged out from the underworld into the limelight? Merely "Exhibit B"

in the Dance of Death, for if the male prostitute at whom you have looked is 90 per cent. infected, he sometimes recovers. The more passive female totals 100 per cent. of infection, and never recovers.

Interlude.—O! the pity of it. Women doomed by chivalric (?) man to such a fate! Look into the faces of that unhappy throng, sick and broken and prematurely old, yet two-thirds of them but children in mind, their bodies ripened, plucked, rotted and now thrown aside, the intellectual flame which might have saved them burning low in the lamp of life.

How can we justify our passivity in the demonstrated yearly sacrifice of over-grown children upon this horrid Moloch of White Slavery? Men with brains in their heads hold their hands and prate about the polygamic instincts of the male and the monogamic instincts of the female, when they honestly must know that the same heredity dominates them both. Let us confess that the present double standard is convenient and pleasant, and we do not wish it changed, or, realizing the horrors of it, as we must, let us candidly set to work to do what is possible to equalize things.

Figure III.—However distressing is this picture and the vileness it uncovers, let us raise the curtain upon another scene. Behold, again, a group of women; bridal veils and wreaths of faded flowers suggest the recent marriage rite. Young they are, but their faces now are pinched and haggard, pale and wan. Dragging themselves across the stage and stretching their feeble hands out to you, they make their pitiful bow, for these brides of yesterday have all passed under the knife and they are but sexless broken wrecks of what they were only a few short weeks ago.

Interlude.—Those gay young blades—who laughed when they told you their complaint—did not all get well when they thought. You know and I know that very few were well six months after their first fiery experience; and the trusting young women who gave literally their lives into the keeping of those young men, here they are, spotless Innocence irremediably blasted by a vileness unspeakable. Knowing not yet the curse which has smitten them, but mutilated and undone, they appeal to you as men who do know, to guard the defenseless against a trouble worse than death.

And what are we to say when no steps have yet been taken anywhere in this broad State to protect those countless other brides who are daily facing at the marriage altar conditions of which the physician alone knows the seriousness?

"The moving finger writes, and, having writ,
moves on,
Nor all your piety nor wit
Can lure it back to cancel half a line,
Nor all your tears wash out one word of it."

The past is done. The case is one for prevention—and the future. Are you ready to meet the issue?

Figure IV.—Haltingly the sad coterie moves back, and the ultimate iniquity of this awful scourge is manifest; for, set to slow music, Mary Kirkbridge's "Army of Sorrow" is chanted by a procession of lame and halt and feeble-minded, insane and criminal derelicts, led by a regiment of toddling infants blinded at their birth.

"For we are the Army of Sorrow, living, yet worse
than dead,
Saddest of all God's creatures from whom the light
has fled.
The guilt of our teeming cities has doubled our
teeming ranks,
But many a sunlit valley sends stragglers to our
flanks.
From village and town and prairie, o'er the length
and breadth of our land,
Are gathered the thousands on thousands who make
up our pitiful band."

Twenty-five per cent. of the blindness in the world is due to the coccus of Neisser, and since Crede's discovery every bit preventable. What a commentary on the carelessness or neglect or inexcusable ignorance of somebody.

What proportion of the distorted humanity which people our asylums and almshouses is due to gonorrhœa and syphilis, only God and the Devil know, but we know that this army of sorrow would have thinner ranks but for the recruits which the medical fraternity furnish to it, either by neglect of known duty or lack of thought for the future of the race.

Lights Out.—Let the curtain ring down. It has not been a pleasant sight, but we must stand sponsor for the unhealed lepers whom we *know* and who are free to go and come, marry and mix with society in its most intimate relationships, and unless we take action, the death they spread is rightly attributable to us. What must we do?

Aftermath.—First, as to Exhibit "A"—The

Young Man Problem.—I fear the present young man of twenty is beyond our reach, for those who have crossed the Rubicon are difficult if not hopeless of control, and many, very many are soiled; but the high school youth may be reached if we bestir ourselves.

1. Definite campaigns of instruction in sex hygiene should be inaugurated in every community. Plenty of good literature on this topic is easily obtainable both for instructing boys, and for the instruction of girls. If the average man or woman would only remember the source from which he or she obtained their first sex knowledge, they would lend themselves actively to any movement which would close the majority of such sources to the ears of their own children, and would advocate any propaganda which would furnish these children with the sacred truths of sex to arm their innocence.

2. We should take a stand for health department supervision of venereal disease. Every case should be reported, not for public inspection, but for control by proper authority. If small-pox is reportable, if tuberculosis is reportable, why not syphilis and gonorrhœa, both being infectious, and both ruinous? When a man knows that he will be subject to supervision and control when he acquires the secret disease, his exposure to these diseases will be much less frequent.

Exhibit "B"—The Demi-Monde.—One hundred per cent. of infection! Shall we countenance its presence in our community? Sixty per cent. of that hundred registers less than twelve years old mentally by Binet tests. Shall we then countenance the prostitution of children?

We think it not strange that our women are continent, and the question is being asked with greater and greater insistence, why should society provide even *sub rosa* for the incontinence of men?—opportunity provided for acquiring diseases which threaten the foundations of society!

"Oh opportunity, thy guilt is great!

'Tis thou that executest the traitor's treason,
Thou sett'st the wolf where he the lamb may get;
Whoever plots the sin, thou point'st the season;
'Tis thou that spurn'st at right, at law, at reason;
And in thy shady cell where none may spy him
Sits Sin to seize the souls that wander by him."

As a father of boys, I condemn the whole business; as a practical sanitarian, I must recognize the obstacles to sudden suppressive measures. This much, however, may be done, this much

must be done or we may not retain our self-respect:

1. Binet tests must be made of all occupants of houses of ill-fame, and the feeble-minded women removed and placed under proper custodial care.

2. Registration of all cases of venereal disease. This, of course, means health department supervision of these infectious diseases as it does of others.

3. Full, free, adequate hospital treatment should be furnished all cases of venereal diseases without any idea of criminality being attached to the condition.

Exhibit "C"—The Unsexed Wives.—No doctor should permit any young man to get married who has been treated for gonorrhœa or syphilis without using every means in his power to induce him to apply every known test to demonstrate his present freedom from these diseases. The doctor should go any length to prevent an infected man from contracting marriage. No consideration for the man should weigh for an instant with the alternative of the certain physical ruin of a good woman.

Exhibit "D"—Blindness and Congenital Defects:

1. The use of nitrate of silver solution in the eye of every new born child should be a routine measure with every physician. Health departments should require mid-wives to carry the standard silver solution in their kits and use it regularly. To this end mid-wives in every town should be registered and instructed in ordinary cleanliness at the bed-side.

2. Every doctor, and particularly every health officer, should study the philosophy underlying the new science of eugenics and apply, as he can find opportunity, its principles to the social betterment of his community.

Conclusion.—To try and settle in an off-hand way one of the great problems of the ages is an ambitious task, and one peculiarly fit for that fool who fears not to tread where angel footsteps may not go. If, however, the bare portraiture of a few phases of what, to my mind (and I speak only in my individual capacity), is the greatest public health need in Virginia, and, perhaps, in the world, will set the doctors and public health men to thinking and acting about it in a constructive way, the effort is not vain.

The movement for bettering these age-long injustices and abuses is on. We physicians may elect to guide this movement wisely, or we may stand aloof, but be sure if we act as obstructionists in a matter so peculiarly within our province, we will add but another billet to the load of public prejudice, which in some quarters is rising against us.

INDICATIONS FOR THE USE OF FORCEPS.*

By H. C. GRANT, M. D., Crozet, Va.

This is a subject as old as forceps themselves but one that is constantly abused by practitioners who do or should know better. We all see women every few days suffering from the improper or injudicious use of forceps.

To anyone who will keep a history of his obstetrical cases it is surprising to note how few of them actually need forceps. Having kept a close case history of two hundred and ten confinements, I find that in only four of them were forceps positively indicated. Of course, one may err on the other hand and delay the forceps too long, and thus exhaust the patient. A safe rule, and one that I find is observed by leading obstetricians, is to use forceps if the child, after engaging in the pelvis, makes no progress whatever for one hour, provided, of course, that the pains are good.

I believe that floating forceps should never be applied, as podalic version is always to be preferred and gives better results. In face cases where the case is seen and diagnosed in time, that is before the head has engaged in the pelvis, a podalic version is the procedure of election; but if the head is well engaged, the presentation should be converted into a vertex, and, unless the pelvis is unusually large, forceps will then have to be applied to deliver.

In case of twins where an hour elapses without delivery of the second child the membranes should be ruptured, if present, and the child delivered by version or forceps. In cases of prolapse of the funis, where restoration of the cord fails, and the child is still living, dilatation of the cervix and delivery by version or forceps should be resorted to. It is sometimes possible to save the child by rapid delivery without restoring the cord.

*Read before the Augusta County Medical Society, at Staunton, Va.

I believe forceps are used far too frequently to save the doctor time and to the detriment of the patient.

In lieu of the bad results so often following the use of forceps, I would enter a plea for more conservatism in their use, for, after all, the delivery of a living child is not the only goal in view.

It would hardly seem necessary to suggest that the forceps should be removed when half of the head is delivered and the delivery of the head completed by the hands, but I have seen babies delivered too often without this precaution and the laceration greatly increased thereby. I admit that under rare conditions it is possible to deliver with forceps and get no laceration, but it is more often the case that there is an internal if not an external tear.

Proceedings of Societies, Etc.

NINTH ANNUAL CONFERENCE OF THE AMERICAN MEDICAL ASSOCIATION ON MEDICAL EDUCATION AND LEGISLATION.

Reported by CHAS. M. HAZEN, M. D., Bon Air, Va.
Professor of Physiology, Medical College of Virginia.

The Ninth Annual Conference of the American Medical Association has just been held in Chicago upon the subjects of Medical Education and Legislation.

These Conferences are held by the Committees, or Councils, which have been appointed to look after these matters, and by invitation there are also present the representatives of the American Medical College Association and the colleges which comprise that Association, and the Federation of State Examining Boards.

These three bodies are the great powers today in medical education and legislation. Thus are represented and welded together the interest and influence of the medical profession at large, the institutions responsible for educating the profession, and the public who are dependent upon the profession for guidance and care in matters pertaining to health and disease.

These meetings are largely attended, those present being the most prominent medical educators, a number of University presidents,

and other men prominent, for their position and ability.

The Conference was honored in its opening by the presence of the great and venerable Dr. Abraham Jacobi, of New York, ex-president of the American Medical Association.

The first morning's program was largely occupied with comparison of European and American methods in medical education, the recent Carnegie report being discussed. A number of those present spoke from a personal acquaintance with the German Universities and were free in giving credit and criticism to both sides. Speaking generally, the conclusion is that the genius of America calls for a treatment and method of its own.

Dr. Jacobi recalled his graduation in Germany, sixty years ago, and that he had learned and unlearned much since coming to America. He said, among other things, that the German medical student wasted one or two years before sitting down to work, but even then "many did more with the posterior than with the anterior end of the body."

Another speaker expressed the idea that the development of the occasional brilliant individual was more in evidence in the German University than the education of the whole student body. Praise, however, was given to the eagerness with which the better student seized every opportunity and vied in using all clinical and laboratory material, and the zeal with which the best teachers were sought out. The migration from one school to another is a possibility where the whole system is standardized by a wise and powerful government upon a basis of thorough preliminary education.

The superficial viewpoint of the American student in Germany, so often satirized, was illustrated as follows: A great German laboratory teacher told of two Americans whom he had recently met. One was investigating the German methods. "What do you wish to see?" the renowned professor asked him. He replied, "I wish to see your laboratories, to meet and question your assistants, to observe your methods of teaching, to understand fully the relation of your hospital and dispensary clinics to the research work of your institution." "How long do you expect to spend with us?" "All day to-morrow," was the reply.

Another American graduate in medicine en-

tered one of the laboratory courses and after putting on his white coat and getting microscope ready for work, was observed to go to the window every ten minutes to shake his handkerchief. On inquiry as to what it meant, he replied, "Oh, we have just been married and my wife is out there waiting in the automobile until I get through."

Among others who discussed this subject and threw light upon American methods were Dr. Cannon, of Harvard, whose "X-ray cot" was one of the interesting things in medical study twelve years ago; and Dr. Bradford, the celebrated orthopedist, also of Harvard. In fact, it was quite a Harvard program and brought out the strength and extent of the Harvard medical establishment and the value of the Harvard elective system.

Under the head of the "Organization of the Medical School" the most valuable contribution was the speech of President Vincent, of the University of Minnesota. The University of that State, situated in St. Paul, is just passing through the same crisis which is occurring in Richmond, Va., namely, a readjustment of the work in medical education. The same problems confront both institutions, namely, how to best govern the medical school, the relation of the faculty to the Board, the administration of hospital matters, the qualifications and selection of clinical teachers.

During the afternoon session, post-graduate medical education was considered and discussed. Dr. Vaughan, of the University of Michigan, being the most prominent speaker, was followed by Dr. McCormack, who is well known in many ways to the profession and who is responsible for the home post-graduate courses which are now being followed by county medical societies everywhere.

Under the head of State Licensing Boards, Dr. Old, of Norfolk, Va., explained the excellent law now obtaining in Virginia as to requirements in medical education.

The address by Dr. Witherspoon, of Nashville, Tenn., President-elect of the American Medical Association, closed the program. He dealt with the advances in recent years in the profession and professional education. Dr. Witherspoon has long been looked upon by the Southern schools as their champion and representative.

This was the first day's work in the Ninth Annual Conference.

Analyses, Selections, Etc.

Radium Emanations in the Treatment of Gout.

Professor His, Berlin, after discussing the various meanings of the word "gout," holds that the term must be restricted to a morbid entity characterized by disorders in the metabolism of nucleinic substances and by the presence in the blood of uric acid, this uric acid being independent of the patient's diet. In doubtful cases, the diagnosis must be confirmed by blood-analysis.

Inhalations of radium emanations, the alpha and beta rays, have given Professor His excellent results which he has always confirmed by careful examinations of the blood and urine. Of 49 patients, 37 were rid of uric acid after an average of twenty-five sances; in nine, there was no result; and the last three patients regained perfect health although the uric acid had not disappeared. The thirty-seven cures seem to be definitive, there having been no reappearance of the uric acid in the blood though several months have elapsed—in one case, a year and a half.—(*Progres Medical*, November 18, 1911.)

Cane Sugar in Myocardial Degeneration.

Simon (*Birmingham, England, Medical Review*), reports the case of a woman aged 66 years, suffering from pronounced circulatory weakness due to myocardial degeneration, in which "extraordinary" benefit was derived from the ingestion of large amounts of cane sugar. The patient had been treated with strophanthus, caffeine, saline purges, and later, digitalis and potassium iodide, without much success, the dyspnea, cyanosis, and edema increasing until it appeared that she could not have many days to live. One ounce of lump sugar was then given morning and evening (later increased to four ounces per diem), with the result that the pulse became regular, its rate dropped from 110-125 to 88-96 and later to 72-84 a minute; the edema disappeared, the patient became alert and active, and finally left the hospital entirely free of discomfort. He concludes that, given a suitable type of case, sugar is at least a valuable adjunct in the treatment of obstinate cases of heart failure due to deficient heart muscle without valvular lesion.—(*Charlotte Medical Journal*.)

True and False Intestinal Flatulence.

D. Roberts concludes that gas varying in amount with the diet is normally generated in the human intestine. Normally it is absorbed, or if convenient, passed when it gives rise to a slight feeling of pressure. The hypochondriac may be apprehensive over just this normal condition. Abnormal flatulence depends on an excessive fermentation or the abnormal accumulation of a normal flatus or a combination of the two conditions. Too much reliance is placed on antifermentative drugs and digestive ferments to relieve the complaint of flatulence. Too little attention is given to benefits to be derived from proper regulation of the bowels through whatever measures may be necessary for the particular case. Attacks of abdominal tympany should be regarded with suspicion and search made for mechanical obstruction or local peritonitis. In a large majority of instances the complaint of gas in the bowels means merely that there is an abdominal discomfort and without sufficient reason it is attributed to gas. Too much stress can not be laid on the importance of recognizing cases of false flatulence due to anatomical lesions in the abdomen or to disturbances of intestinal peristalsis.—(*Long Island Medical Journal.*)

Bone Transplantation and Regeneration.

In a review of recent literature upon these subjects. Malvern B. Clopton, St. Louis, says that some of the observers have made careful histologic examinations of the transplant after various periods of healing. Laewen studied the bone that had been transplanted for seventy-eight days, and found by injecting the vessels of the amputated arm that there was a complete vascularization of the piece of tibia that had been implanted. The transplant had died and was being gradually absorbed and replaced by new bone which grew from the bone-cells of the Haversian canals; and at no place could he find any of the implanted bone that stained normal for living tissue. The new bone took the form of the tissue it replaced; and the periosteum lived and was active in developing the new bone which lay between the periosteum and the dead graft. The cells of the medulla were also active in the formation of new bone. These views coincide with those expressed by Ollier over fifty years ago, and conform to the views of Axhausen.

The latter, after extensive experimentation and considerable experience with humans, believes that the best transplant is a live piece of bone with periosteum and some bone-marrow. The periosteum which is freed from attached muscles, is incised in various places to allow freer proliferation. The bone is best taken from the same individual or, if this is impossible, from another individual, but never from an animal, because its replacement is delayed and the periosteum does not proliferate. The experiments of Baschkirzew and Petrow with animals make them believe that transplants without periosteum are as efficient as when the periosteum is retained, and that regeneration comes irrespective of the periosteum or bone-marrow. They believe that the primary layer of granulation tissue which surrounds the transplant is the chief source of the regeneration of bone, which metaplastic formation of bone is due to the irritation of the gradually dying bone. They also believe that, despite the partial necrosis of the periosteum, which they have observed, the periosteum still has a useful function, and in making transplants the periosteum should be preserved.

Macewen, however, was first responsible for the pronounced stand that periosteum had no part in the formation of bone, and that it was only a limiting membrane. This radical teaching has been very clearly developed in the series of experiments that form the basis of his book. He believes that all diaphyseal bone is reproduced from the proliferation of osteoblasts derived from pre-existing osseous tissue, and that this takes place independently of the periosteum. To his mind the periosteum has no osteogenetic power. His experiments cover many phases of bone transplantation and are certainly convincing. McWilliams has accepted Macewen's idea and has inserted parts of ribs denuded of periosteum with apparent healing. He has also carried out experiments on animals that are intended to show that the development of new bone comes from the bone cells and not from the periosteum. Murphy believes that periosteum should be on the transplant which acts as a scaffolding for the reproduction of new bone of the same size and shape, the transplant being ultimately absorbed. The graft is not osteogenetic, but osteoconductive. The role of the transplant is to give mechanical support to the capillaries

and blood-vessels with their osteogenetic cells as they advance from the living bone at both ends of the transplanted fragment into the Haversian canal, canaliculi, and lacunae of the transplant. The periosteum attached to the transplant, if the graft is taken from young people, has a positive osteogenetic influence; in the middle-aged it is neutral, in those of advanced years it plays a negative role and is detrimental.

The indications for transplanting bone are (a) to correct deformities resulting from developmental defects such as aplastic radius, ulna, humerus, etc.; (b) to produce union in ununited fractures; (c) to replace bone removed by destructive infections, osteomyelitis, tuberculosis, lues; (d) to restore or supplant fragments dislodged or destroyed by fractures, as the head of the humerus, head of the femur, shaft of the tibia; (e) to replace bone removed for non-malignant or encapsulated malignant neoplasms.

Carter has transplanted a rib, without the periosteum and the medulla scraped away, into a pouch of skin over the nose, and has had uniformly good results in the nine cases operated upon.—(*Interstate Medical Journal*, February, 1913.)

The Salvarsan Situation.

It has been a matter of great interest to observe critically the trend of sentiment and opinion in this country and Europe with reference to salvarsan. There is no doubt whatever but that the early enthusiasm which attended the first introduction of the drug is waning greatly. That the use of the drug with demonstrable lesions of syphilis is attended with marvelous results has been demonstrated time and time again. But, though the use of the drug is in its infancy, it has been amply demonstrated that its use will not thoroughly and finally eradicate the disease. It will be remembered that this was the earlier claim for the drug. The so-called *sterilisatio magna* which was the early claim for a single dose of the drug has been found to be a delusion and a snare. Its strongest advocates now recommend and employ several doses and then advise the use of mercury in some form. In the early burst of enthusiasm this old wheel horse of treatment was completely lost sight of, but now that the shortcomings of its newer confrere are being rapidly realized, it is coming into its own again.

A relatively large number of deaths have been reported and there are doubtless many that have not been put on record. The unfortunate feature of this phase of the question is that as yet we are absolutely and totally unfamiliar and unacquainted with the real causes which go to bring about these untoward results when they do occur. True enough that Ehrlich attributed the early fatalities to the use of salvarsan in cases not suited for its administration, such, for instance, as diseases of the nervous or cardiovascular system. But the surprisingly large number of deaths which have been reported occurring in young and seemingly robust individuals, having been found free from all traces of these conditions, has served to bring the drug into considerable disrepute. There has not been found any logical explanation for many of these fatalities. Again, it has been charged that some of the fatalities have been caused by bacteria in the distilled water used in the preparation of the drug. Whether or not this is a valid arraignment we cannot say; but true it is that deaths have occurred in which the water was distilled and sterilized on the spot by men of proven competence.

As has been pointed out, this change of base on the part of the advocates of the drug is not conducive to increase in the esteem in which it is likely to be held by the profession. What is most important of all is this, that sufficient time has not elapsed for the final end results in the cardio-vascular and nervous systems to be noted. What these results will be we cannot tell.

After a careful review of the field, we may summarize the situation as follows:

1. Salvarsan is not a specific in the cure of syphilis.

2. It will work magic with open lesions.

3. Its use is not devoid of dangers; dangers that we now know positively of and those possible future dangers yet to be demonstrated.

4. It is believed that it is due to fairness and candor that the dangers and uncertainties of the treatment shall be fully pointed out to patients, and to a certain reasonable extent at least their decision and best judgment shall govern the plan of treatment.

5. The greatest advantage which salvarsan has over mercury is rapidity of action.

6. The ultimate place of salvarsan will probably be in the treatment of those cases of

syphilis which do not yield readily to mercury. In the meantime accumulated experience has demonstrated that the mercury treatment had best be first employed.

7. The causative factor of bacteria in the water is almost positively a myth. Large quantities of salt solutions are used daily in hospitals frequently under circumstances of the greatest haste and untoward symptoms are not noted.

8. Salvarsan should be administered only by those expert in its use. The interior of a vein is a place that the competent surgeon has a great deal of respect for, and he is not going to enter it except for very good cause and under the most favorable circumstances.

9. This is a resume of the literature. Our pages are open to any one with extended experience who will further discuss the question.—
(*Editorial, Memphis Medical Monthly.*)

Correspondence.

Iodoglycerole in the Treatment of Mouth Infections.

Des Moines, Ia..

Feb. 21, 1913.

To the Editor:—In your issue of February 7, there appears a very good article under the title *Iodoglycerole in the Treatment of Mouth Infections*. On page 543, *zinc iodide* is given as part of the compound while on the next page this sentence occurs, "Care should be taken in compounding this formula to see that the druggist uses the pure *zinc oxide*."

Please state which is the one intended, *zinc iodide* or *zinc oxide*. S. S. STILL.

In answer to the above, we wish to thank Dr. Still for calling our attention to the error, which was typographical. The preparation should have been *zinc iodide* in both instances.—*Editor.*

Book Notices.

Diseases of Children—A Practical Treatise on Diagnosis and Treatment for the Use of Students and Practitioners of Medicine. By BENJAMIN KNOX RACHFORD, M. D., Professor of Diseases of Children, Ohio-Miami Medical College, Department of Medicine of the University of Cincinnati; Ex-President of the American Pediatric Society, etc., New York and London: D. Appleton & Company. 1912. Cloth. 8 vo. Pages xvii, 783. Price \$5.00.

This is a very excellent treatise, and impresses us as being suited to the needs of the general practitioner as well as for a student's text-book as any work of its kind we have seen. The author has but briefly outlined pathological findings, and has avoided unnecessary etiological discussions in order to give more space to differential diagnosis and treatment. There are, besides six colored plates, one hundred and seven illustrations scattered throughout the text, the selection having been made with good judgment, and having a practical bearing on the subject presented. A full index adds materially to the value of the volume.

Editorial.

Last Call for Virginia Physicians to Register With the Courts.

This will be our last opportunity for urging doctors throughout this State to register on or before March 12, 1913, in compliance with an act of the last General Assembly. This new law is entitled "*An Act to regulate the practice of Medicine and Surgery in the State of Virginia*," Section 6 of which reads, in part, as follows:

"6. *Registration of certificates; verification certificates; duplicate certificates; reciprocity.*—Within one year after the passage of this act all licensed practitioners of medicine in this State shall, as above provided, register their certificates to practice medicine in the office of the clerk of the circuit or corporation court of the county or corporation in which they reside."

While further information may be obtained from the Secretary-Treasurer of the Medical Examining Board of Virginia, Dr. Herbert Old, Norfolk, Va., it may be well to state that when the law becomes effective on March 13th. the matter of non-registration will not rest with the Medical Examining Board,—it will be a case in which the State of Virginia will prosecute the individual who has not complied with the act. The Board can only state whether or not the qualifications of the practitioner are sufficient to enable him to obtain a license.

The old adage, "A stitch in time saves nine,"

may well apply here, for the physician who neglects attention to this question until after the time limit will, beyond doubt, find the difficulties for legal registration multiplied many fold. *Register now.*

Cultivation of the Malarial Plasmodium.

One of the most interesting and instructive features of the Norfolk meeting of the Tri-State Medical Society was the lantern slide demonstration and lecture by Dr. Bass, of Tulane, on the cultivation of the plasmodium malariae. Dr. Bass has succeeded in growing the organism through four generations by defibrinating a small amount of blood from an infected patient, withdrawing the serum, and adding a solution of glucose. The plasmodium grows at body temperature in the top-most layer of the sedimented cells. The organism is transplanted to human red cells similarly treated and placed upon the surface of coagulated serum. Growth takes place only at the surface of the red cells in a layer one-fiftieth of an inch thick. The presence of glucose seems to be essential for the success of the experiment. In his lantern slides Dr. Bass showed all stages of the tertian and estivo-autumnal parasites, from the young ring bodies to the segmenting forms and free merozoites, the latter not occurring in the peripheral blood of an infected individual.

One of the most interesting and important points emphasized by Dr. Bass is the fact that human serum is almost instantly fatal to the malarial organism and that the merozoites can pass from one red cell to another only when the two cells are in actual contact, a fact that goes far in explaining the rather rare fatal termination of malarial infection. If all the merozoites liberated during a paroxysm succeeded in entering other red cells, it is easy to imagine how rapidly fatal a disease malaria would be. Another interesting point opening the way for speculation concerning certain phenomena observed in malarial infection is the fact that the plasmodium was found, by quite conclusive experiments, to be not so readily extensible and compressible as are the red cells of the blood, thus perhaps explaining the occasional clogging of brain capillaries observed in some severe cases of malaria.

An experiment illustrating the possibilities for practical application of the artificial culture consisted in a parallel test performed

with quinine and a certain vaunted proprietary antimalarial preparation, by which was demonstrated the absolute effectiveness of quinine as a specific, contrasted with the inert article offered as a substitute.

Cultivation in pure culture of the organism responsible for the clinical phenomena attending any given communicable disease has almost without exception preceded important advances in the prophylaxis and treatment of that disease, and it cannot be wide of the mark to predict that the same result will be true in reference to malaria, that this discovery of a means for cultivating the organism of this disease will be the starting point from which our further knowledge of malaria will be extended in the work of both clinician and sanitarian.

W. A. SHEPHERD.

Tri-State Medical Society of the Carolinas and Virginia.

The fifteenth annual session of the Society held at Norfolk, Va., February 19-21, inclusive, was replete with a number of notable papers, and the hospitality extended by the physicians and city of Norfolk was unsurpassed. The discussion of interest to probably the greater number of physicians was the symposium on "The Malarial Problem of the South," and was participated in by prominent men who are making a thorough study of the condition—Drs. W. S. Thayer, Baltimore; Capt. Chas. Craig, Surgeon U. S. A., and Dr. C. C. Bass, New Orleans.

The entertainments tendered the members and guests of the Society were an informal reception at the Country Club, on the first evening, by Dr. Southgate Leigh, an oyster roast at Cape Henry, on Thursday, given by the Norfolk Convention Association to the doctors and the ladies accompanying them, and a reception and luncheon by the staff of the U. S. Naval Hospital, on the last day.

Wilmington, N. C., was selected for the next place of meeting, and the officers elected were as follows: President, Dr. Southgate Leigh, Norfolk; vice-presidents, Drs. Stephen Harnsberger, Catlett, Va.; E. Reid Russell, Asheville, N. C., and J. H. Taylor, Columbia, S. C.; secretary-treasurer, Dr. Rolfe E. Hughes, Laurens, S. C. (re-elected). Members of the executive council are Drs. Saml. Lile, Lynchburg, Va.; Edward C. Register, Charlotte, N.

C.; Wm. W. Fennell, Rock Hill, S. C.; J. Howell Way, Waynesville, N. C.; Rufus B. Epting, Greenwood, S. C.; J. S. Horsley, Richmond; A. E. Baker, Charleston, S. C.; D. A. Stanton, High Point, N. C., and J. H. Culpepper, Norfolk, the latter succeeding the newly elected president. The last four named are the new members of the Council.

Malaria Served With Toasts.

A report of the Tri-State meeting would hardly be complete without reference to the elegant dinner given by Dr. Wilson E. Driver, of Norfolk, to the distinguished visitors who discussed the question of "Malaria of the Atlantic Seaboard," and to which were invited a number of prominent physicians and laymen. Hon. A. P. Thom, of Washington, D. C., acted as toastmaster, and the speakers who responded—Drs. Thayer, Craig, Bass, Surg. Gen. Blue, Miss Brown (a teacher of North Carolina, who has made a number of observations on malaria), Governor Mann, and Mayor Mayo, of Norfolk—were all compelled by orders of the toastmaster to have their toasts on the all-absorbing topic of *malaria*. The object of this gathering was to discuss measures for banishing malaria from this country. The key-note of speeches made was that *prevention* should be taught the people through the press and schools.

This entertainment will be one long-to-be-remembered by those in attendance.

The Southside Virginia Medical Association

Will hold its next quarterly meeting in Richmond, Dr. Bernard Barrow, of Barrow's Store, presiding. The first session will be held in the afternoon, in the Auditorium of the University College of Medicine, while the evening session will be held in the same place in conjunction with the regular meeting of the Richmond Academy of Medicine and Surgery. Upon adjournment of the scientific sessions, the Association members will be entertained at supper by the local honorary members.

A Conference on Hygiene

Will be held in Staunton, Va., March 8, under the auspices of the Committee of Education and Publicity of the Augusta County Medical Association, of which Dr. Wilbur M.

Phelps, of Staunton, is chairman. Each private and public school district in Augusta County, as well as the city of Staunton, and the various churches have been requested to send two delegates each.

The object of the Conference is to perfect plans for a county organization of laymen to co-operate with the Augusta County Medical Association in securing the introduction of physiology and hygiene as major subjects in the secondary schools of the State.

The Department of Health, Norfolk, Va.,

Has adopted the Stoakes-Stoner Sterile Bile method for release culture test for typhoid fever, and has supplied the laboratory with these outfits. Physicians will also be supplied with the outfits, and will be requested to see that all patients under their care send specimen culture to laboratory for examination for typhoid bacilli.

It is interesting to note that fifty per cent. less typhoid was reported to the Norfolk Health Department in 1912 than in 1911.

Merging of Medical Colleges in Three States.

In addition to the merging of the University College of Medicine with the Medical College of Virginia, in Richmond, it has been announced that at the close of the present session, the Memphis Hospital Medical College will be merged with the Medical Department of the University of Tennessee, and Drake University College of Medicine with the Iowa State University College of Medicine.

Changes in Virginia of Medical Officers of U. S. A.

Lieut. P. B. Connolly left Ft. McPherson, Ga., February 14, for Newport News, Va., for transport duty.

Lieut. T. E. Harwood left Ft. Caswell, N. C., February 14, for Newport News, Va., and sailed on transport Meade for League Island, Philadelphia, Pa., February 18.

Lieut. H. C. Maddux arrived at Newport News, Va., February 14, for temporary duty in transport service.

Capt. C. F. Craig left Washington, D. C., February 20, for Norfolk, Va., to attend meeting of the Tri-State Medical Association of the Carolinas and Virginia.

Vital Statistics in New York City.

As an evidence of the effective work being done by the Department of Health of New York City, the 73,008 deaths reported for 1912—a ratio of 14.11 per 1,000 population—was less by 2,415 than the number of deaths for 1911. This reduction was especially marked in the reduction of mortality of children under one year of age. The number of births in that city for 1912 was 135,625, with a rate of 105 deaths per 1,000 children born. These statistics compare more than favorably with those given for 1911 by a number of the larger European cities and countries.

Dr. Allen W. Freeman,

Of Richmond, Va., Assistant State Health Commissioner, left the last of February, for a vacation to be spent in Panama and Central America. He will be absent from the State about a month.

Dr. Fred M. Hodges,

Richmond, Va., has returned from Vienna, where he was engaged in study, and has resumed his private work as well as that in connection with the Hygeia Hospital, in this city.

National Child Labor Conference.

Several representatives from Virginia will attend this Conference in Jacksonville, Fla., March 13-16. It was a committee from this Conference that rendered valuable assistance to the Virginia branch of the organization in securing the passage of the present child labor law in this State.

Instructor for Miraj Medical School.

A teacher of physiology, chemistry, physics, biology and bacteriology is needed to work in connection with the Presbyterian Mission Hospital Medical School and Leper Asylum, at Miraj, West India. A man with knowledge of X-ray work is preferred. Travelling expenses and living quarters are provided in addition to \$50 monthly salary, for a term of three years.

Christian men who wish to investigate this opening should send full particulars regarding their qualifications to Mr. Wilbert B. Smith, 600 Lexington Avenue, New York City.

First Aid to the Injured.

The Norfolk and Western Railway will co-operate with the American Red Cross First

Aid to the Injured in their endeavor to furnish needful information of the above nature to those in the employment of the road and of manufacturing plants on its route, who are engaged in hazardous work. To this end, they will shortly start a train from Norfolk, Va., and the physician representing the Red Cross Society will give appropriate talks en route, stopping in the larger towns for a day or so.

\$5,000 for Physiology Laboratory.

The Trustees of National University of Arts and Sciences, of St. Louis, announce that a contract was signed February 21, 1913, for the building of \$5,000 worth of apparatus for use in the physiology laboratory of the medical department (American Medical College) of the University. Dr. Bernard Blass, formerly of New York City, has been elected Professor and Head of the Department of Physiology, and will assume this position with the opening of the session of 1913-1914.

Excellent Opportunity for Energetic Doctor to Locate in Virginia.

\$7,500 will purchase a beautiful country homestead, approximating 147 acres in a desirable district, 1 1-2 miles from railroad, offering a profitable practice. Houses, orchards, shade trees, telephone, free delivery, and excellent roads. Buildings and improvements alone cost more than the price asked. Address Thos. P. Spencer, 165 Broadway, New York, N. Y. (Adv.)

Obituary Record.

Dr. Saul Brock Angle,

Of Windsor, Va., a popular and prominent physician of Isle of Wight County, died at a hospital in Suffolk, Va., February 23, aged thirty-two years. He was a native of Richmond, and upon completing his academic education at the public schools there, studied medicine at the University College of Medicine, from which he graduated in 1901. He was a Mason and a member of several fraternal orders, and was closely identified with his State and various local medical societies. He is survived by his wife and three children in addition to a large family connection. The interment was in Hollywood Cemetery, Richmond.

THE Virginia Medical Semi-Monthly.

(FORMERLY VIRGINIA MEDICAL MONTHLY.)

Vol. 17, No. 24.
Whole No. 408.

RICHMOND, VA., MARCH 21, 1913.

10 Cents a Copy
\$2.00 a Year

Original Communications.

MYOMA AND PREGNANCY---THE THERAPEUTICAL INDICATIONS.*

By GEORGE TUCKER HARRISON, M. A., M. D., Charlottesville, Va.

Consulting Surgeon to the Woman's Hospital, New York; Fellow of the Obstetrical Society, New York; Honorary Member of Medical Society of Virginia; Honorary Member of Woman's Hospital Society, New York; Fellow of the American Gynaecological Society, etc.

The dangers belonging to pregnancy, when complicated by one or more myomata, have been greatly over-estimated in the past, and many an operation has been performed, under these circumstances that was, to say the least, unnecessary, in consequence, usually, of the fear of disastrous consequences attending the act of birth. The masterly exposition of Hofmeier¹ has shown, however, that these fears were exaggerated. To quote his words: "I believe I may say most positively, from my experience, that the complications which myomata present during pregnancy, birth and the puerperal state, cause actual earnest dangers only in a few cases, and may be quite essentially diminished by patience, a cautious treatment of the birth, especially by its strict antiseptic conduct, and by careful attention to the placental period."

In decided contrast with these views are the opinions of Bland Sutton (*Lancet*, 1901, page 452), as quoted by my friend, Dr. H. C. Coe²: "A comprehensive study of the cases in which fibroids complicate pregnancy indicates quite clearly that the life of the woman is in jeopardy, not only so long as the foetus remains

within the uterus, but also when it is expelled, whether this occurs prematurely or at the full term." Such radical views have not, however, found acceptance among the preponderating majority of gynaecologists.

Operative intervention is only indicated when the myoma is so situated that it proves an invincible obstacle to birth. The dominant factor is not the *size* but the *site* of the tumour as affecting the course of the birth. Large and even multiple tumours, where situated in the body of the uterus, do not interfere with the expulsion of the child. Myomata situated in the lower portion of the body, sometimes during pregnancy or during the period of dilatation at birth, are drawn upwards with the lower uterine segment and thus leave the superior strait free for the passage of the child's head. Severe disturbances in the course of child-birth occur when the myoma takes its origin from the cervix, has developed in the pelvic connective tissue, beneath the peritoneum, or is fixed by adhesions in Douglas' cul-de-sac. Under such circumstances surgical intervention is imperatively indicated; otherwise, the patient perishes from rupture of the uterus or sepsis.

During pregnancy our plan of treatment should be an expectant one, as a rule. When active intervention seems indicated, two alternatives face us,—either interruption of the pregnancy, or Caesarean section at term, followed by hysterectomy if necessary. The interruption of pregnancy whether in the form of abortion or premature induction of labour is an uncertain procedure and attended by great danger.

In a certain number of cases it is exceedingly difficult to deliver the foetus, and the removal of the placenta is especially so and, at times, impossible. Fritsch³ truly remarks that the unskilful obstetrician may easily wound

*Read before the forty-third annual meeting of the Medical Society of Virginia, at Norfolk, October 22-25, 1912.

1. Zeitschrift für Geburts u. Gyn., Bd. xxx., Hft. 1, Bd. xlili., Hft. 3.

2. Transactions Amer. Gynaecological Soc., Vol. 23, page 32.

3. Lehrbuch der Geburtshilfe.

the uterus, as he is ignorant of the dimensions of the uterine cavity. The expulsion of the foetus may demand a long time, meanwhile fever appearing with a possible necrobiotic condition of the myoma, so that a pan-hysterectomy will be required, the prognosis necessarily being unfavourable in consequence of the already existing sepsis. Even if our efforts to maintain an aseptic condition are successful at first, there may appear after a time uterine contractions as a consequence of the endeavour of the uterus to expel the myomata. The nutritive material is now cut off from the myomata to a greater or lesser degree, the myoma becomes necrobiotic and necrotic, and finally sepsis, peritonitis, etc., set in. The artificial interruption of pregnancy is not, therefore, to be commended under these conditions. Of late years, myomectomy, or enucleation, has come into favour and been highly praised by some as theoretically the ideal operation; but, on the other hand, been condemned by such men as J. Riddle Goffe, Delageniere, Porro, Varnier, Cumston, Hofmeier, Olshausen, and many others. Donald⁴, who read a paper on this theme before the London Obstetrical Society several years ago, thus expresses himself: "In cases in which the health of the mother makes it necessary to interfere in the earlier months, abdominal section should be performed and an attempt made to enucleate the tumour." Dr. J. Taber Johnson, of Washington City, in a paper read before the American Gynaecological Society, in 1903, declared the operation of myomectomy to be the one of election in the case of pregnancy complicated by "fibroid" tumours. The different standpoint of different gynaecologists thus becomes evident. The objection to myomectomy, in these cases, is the danger of haemorrhage and sepsis,* on the one hand, and on the other, the fact that myomata situated in the body are apt to be multiple, and even if a tumour is removed in the earlier months of pregnancy, a small nodule left behind may grow to a large tumour before the end of pregnancy.

An interesting case belongs here, which I quote from a paper I read before the American Gynaecological Society on this subject⁵: "On July 4th, I was hurriedly called in consultation by Dr. Alfred B. Tucker, to a case in which a woman, according to the clinical his-

tory, had been in labour for several days and yet made no progress, as the pelvic canal was occupied by a large myoma which sprang from the lower segment of the uterus. The os uteri was so distorted that it could be felt with the greatest difficulty by passing around and under the tumour toward the right sacro-iliac junction. The patient had given birth about two and a half years ago to a living child, and, at the fourth month of the present pregnancy, had undergone an operation for myomectomy by laparotomy. The scar on the abdominal wall, in the median line, was plainly visible and from its length the tumour removed must have been large. Unfortunately for the patient, the operating surgeon neglected to remove a small subserous myoma, in the erroneous belief that it would hardly grow to any extent, and, therefore, was a negligible quantity. Careful examination of this patient showed that the tumour was firmly fixed in the pelvis and offered an insuperable obstacle to the passage of the child. As the child was living, the woman having attained the full term, Caesarean section was indicated. The operation was performed by Dr. Tucker, with my assistance, the operator exhibiting masterly skill as usual. It was impossible to enucleate the tumour, on account of its site and other unfavorable conditions, and, therefore, total hysterectomy was decided upon. This was promptly done, and the patient's condition was such, after the operation, as to promise rapid recovery. She died, however, I regret to say, after a few days, from ileus." In this case the myomectomy was a useless and unnecessary operation; the proper indication, in such a case, is to wait until the end of pregnancy and then to perform a Caesarean section. The view, as expressed by Donald⁴, is that when the tumour is subperitoneal and has a well-defined pedicle, and especially when the pedicle is long, the risk of operation is no greater than that of ovariectomy during pregnancy. In this view I concur.

When labour sets in, our attitude must still be an expectant one. If the child is living, a close watch is kept upon the result of the pains in order to observe the relation of child and myoma to one another during the uterine contraction. If it is perceived that the myoma does not move upwards during the unfolding of the cervix, that the conditions become more and more unfavourable, the Caesarean section

4. London Obstetrical Transactions, Vol. XLIII.

5. Transactions (Gynaecological), Vol. 23, page 41.

is made at once, before there is a rise of the temperature. This procedure is much better than by forcible means, whether with forceps or by version, to drag a child through a pelvis occupied by a myoma, even if it be softened and compressible. The contusions and other injuries thus produced may cause sloughing in the tumour as a consequence. The operator is now able to ascertain the exact condition of things.

If there are multiple myomata, either supravaginal amputation or panhysterectomy is performed; or if there is a single myoma it is enucleated, provided the case is an aseptic one. If it is a septic case, however, and the child be dead, total extirpation is indicated as the only possible way of saving life, the child being left *in situ*, and the uterus removed *in toto*, like a large myoma. Says Fritsch³, speaking of such cases, "If the vagina is copiously irrigated and the field of operation well packed with pads before amputation or opening of the vagina in total extirpation, we have good chances, even if the contents of the uterus are decomposed, as I have many times found by experience."

An important point to consider is the preferable method of operation after a preceding Caesarean section, total extirpation or supravaginal amputation, the case being aseptic. The supravaginal amputation is an easier operation and attended with less dangers.

Bland Sutton draws attention to the greater danger of wounding the ureter in total extirpation. He saw a number of cases of such injury to the ureter after total extirpation, in the practice of other operators. It is important to bear in mind that when the Caesarean section is indicated, the correct moment for the performance of the operation must be seized, not to operate too soon when the effect of the uterine contractions has not been manifested, nor too late, when the chances for the complete success of the operation are impaired. Large experience is here necessary to hold the golden mean between over-haste on the one side, and a too passive behaviour on the other.

With reference to treatment during the puerperium, Hofmeier advocates the correct principle, when he maintains, as a general rule, if the birth were accomplished without a myoma operation, the puerperium must be allowed to attain its completion, before the

myoma is attacked in case an operation is advisable. Exceptions, of course, there may be, as when a polypus becomes the seat of gangrene in the puerperal state; then its immediate ablation is indicated to avoid sepsis.

I should here state that when a polypus is diagnosed during pregnancy, it should be extirpated at the end of pregnancy or soon after labour sets in. In the case of a cervix-myoma, an immediate operation after birth is not indicated, as it may be removed at the termination of the puerperium just as easily. In the case of a myoma occupying the body, an operative procedure just after child-birth is exceedingly dangerous and the question of its removal or not should be postponed. A myoma, especially when its site is submucous or interstitial, may interfere with contraction and retraction. Post-partum haemorrhage may, therefore, take place, and if the placenta is implanted upon the myoma a furious loss of blood may be the result. In one case of the kind I found intra-uterine injections of hot water inefficient and only succeeded in saving the life of my patient by the timely intra-uterine injection of tincture of iodine. At that time Dührssen's method of packing the uterine cavity with iodoform gauze had not been discovered.

Of much greater significance than haemorrhages are the dangers that are evoked by gangrene, or putrefactive decomposition. Such degenerative changes occur, especially in the case of polypi, or submucous myomata, during the puerperal state when they descend into the vagina. As soon as signs of decomposition take place the tumours should be extirpated, or, if necessary, the uterus extirpated by the vaginal route. When myomata have to be approached by the abdominal route, there is no indication to operate at the time of child-birth or during the puerperium, except when sepsis has taken place and extirpation of the uterus is indicated. In all other cases we wait until the termination of the puerperal period, because the indication may be established with more accuracy after the involution of the uterus and myoma, and any surgical procedure is then much safer. The death of the myoma during the puerperium may be readily understood, if we bear in mind the fact that the limited amount of nutritive material in the puerperal uterus does not suffice for the myoma which has grown rapidly during preg-

nancy and hence its death. The statement made by a number of writers that the myoma at times entirely disappears doubtless depends on inaccurate observation.

LIVING PATHOLOGY.*

By JOHN B. DEEVER, M. D., Sc. D., LL. D., Philadelphia, Pa.

Living pathology is the foremost contribution of modern surgery to the medical sciences. It is the study of surgical diseases in their various stages of progression to the destruction of life, in contrast with dead pathology, which is based upon the study of terminal tissue changes after the somatic death of the individual. This study of living pathology, especially in surgical diseases of the abdominal viscera, has banished the old misconception of their clinical expression and to-day diagnosis enjoys a refinement existent only in our dreams of twenty-five years ago. It has been truly said:

"'Tis man's worst fault to let the things
That have been run to waste, and in the
Unmeaning present sink the past,"

and that understanding which makes a meaning present in surgery is developed from a knowledge of the faltering steps of scientific progress to the creation of living pathology. Surgical history may be arbitrarily divided into three epochs. From the dawn of time to the eighteenth century, this ancient art was plied in almost complete ignorance of the natural processes of disease. Granting the acumen of observation of our ancient forbears does not incite sufficient admiration to blind us to the crudity of their empiricism. With the advent of that wonderful era in transition from the darkness of medieval, social, economic and moral institutions to the light of modernism, came the emancipation of medicine from routine and the thralldom of authority. To Morgagni, who introduced anatomical and pathological thinking into medicine, must be accredited honors with the leaders in statesmanship, art, literature and culture of a marvelous renaissance. This marks the beginning of the second epoch, the age of dead pathology. The impetus given to clinical medicine by the introduction of pathological study, together with the continuation of experimental research, begun by Galen to find perfection in

Harvey's illustrious work, was such that medicine became espoused to science and sought separation from Art, its ancient mistress. This departure marks the turning point in the development of medicine and its crowning glory rests with that child of a philosophic mind which the present has christened the living pathology. To Lawson Tait must be ascribed the parentage of this infant prodigy which in the few elapsing years has grown to dominate surgical thought. By observing disease processes through the open laparotomy wound Tait was able to solve the riddle of the so-called broad ligament hematomas, which he discovered were due to extra-uterine pregnancy. In like manner Tait showed that the numerous infections of the female pelvis were secondary, in the vast majority of instances, to infection of the Fallopian tubes, thus supplying the key of living pathology to what had been known only as pelvic cellulitis. As a natural result of Tait's observations it was proven that many of these disease processes could be arrested in their trend towards terminal or dead pathology.

John Hunter was undoubtedly the giant intellect of the age of dead pathology, while Lawson Tait merits the honor of having placed living pathology as the foundation of rational surgery. This contribution, with asepsis and anesthesia are the Promethean gifts of all time to clinical surgery. The leaders in medical science as in the other sciences have added lustre to their time, not by the elaboration of details, but by the evolution of far reaching principles, destined to guide practice in many instances through centuries of darkness. That this latter should be true is evident when we recall that ancient medicine was based entirely upon philosophic reasoning with its inherent fallacies. With the introduction of experimental medicine and the awakening appreciating of the relative roles of cause and effect in disease, medicine was lifted from beneath the dark veil of superstition. For almost two centuries, the practice of surgery has been based upon knowledge gleaned from the study of clinical symptoms and dead pathology, and the value gained is inestimable. Perhaps two centuries more will elapse before the medical body politic is purged of the false teachings necessary to an age so pregnant with colossal truths, but even this cannot cast ap-

*Read before the Surgical Section of the Norfolk County Medical Society, Norfolk, Va., February 19, 1913.

probrum, nor dim the lustre of an era so wonderful in scientific progress.

When Lister opened the doors of surgical possibility with the golden key of Pasteur's discoveries, the new science of living pathology awaited but the master touch of Tait to make it our common heritage. Only a few years have gone and "the inaccuracy of thought which may come from a too exclusive devotion to the pathology of the dead" has been displaced in the minds of many by an accuracy borne of attention to the pathology of the living. The progressive surgeon of to-day indulges the hope of that millennium when the symptoms of abdominal disease will create in the mind of every practitioner of medicine, the image of living pathology. When that time comes, the phrases of the modern internist will be recalled perhaps, but only to teach posterity a dead medical language and the gastro-enterologist instead of wasting valuable energy and time in the creation of a meaningless terminology, will hasten to the side of the operative surgeon to learn the fundamental truths of living pathology. Teachers of medicine will not indulge themselves in word pictures painted in the colors of self-delusion and endowed chairs of internal medicine will demand attendance of the incumbent at the right hand of the surgeon to see and believe the primary pathological processes in the living. Those of you who come face to face with the difficult problems of abdominal diagnosis will bear a lighter burden if you remember the advice of Moynihan when he says: "I would urge upon all those engaged in the practice the desirability of following their patients to the operating table whenever opportunity occurs. The lessons there to be learnt will in practice be of a value beyond all reckoning, and interest in the daily work will thereby be quickened to an unaccustomed degree." Let us consider the development of knowledge relative to the living pathology of that most frequently diseased abdominal structure, the appendix. The suggestion of Grisolle, in 1837, to open and evacuate abscesses pointing anteriorly in the right iliac fossa, was made in ignorance of the origin of the pus.

The pathology of the dead house had failed for centuries to connect the widespread intra-abdominal lesions to which death is due in appendicitis with its origin in infection pro-

ceeding from that organ so insignificant in size and in anatomical and physiological importance. To the acute mind of Reginald Fitz we owe the arguments which turned the blazing light of living pathology upon the right iliac fossa, dispelling the mysteria and revealing the truth. The cæcum was cleared of the odium attached to it by the term typhilitis and perityphilitis. By early operation the appendix was demonstrated to be the starting point of the inflammation of that region. The bacterial origin of the disease was substantiated. The march of infection in all its stages could be beheld and understood. Ulceration, gangrene and perforation of the organ and the involvement of the adjacent peritoneum with spreading peritonitis, or the formation of adhesions with limitation of the infection and the production of peri-appendicular abscess: all these were processes easily understood with the opportunity to observe disease processes in motion, which is living pathology.

Not only were the acute conditions resulting from disease of the appendix cleared up but the frequency and importance of chronic disease became evident. It has become clear that the appendix can be the seat of disease without symptoms of sufficient moment to call attention to the fact. It is not at all infrequent to find an appendix which has become thickened, scarred or completely obliterated without any knowledge on the part of the patient that he is harboring a diseased organ. We have become aware also that a diseased appendix may express itself through some other mouthpiece and become confused with organic disease of the stomach or duodenum, or the intestines. Reflexly it may cause spastic contractions of the pylorus, pylorospasm, giving rise to symptoms purely gastric in character. Or it may affect the secretion causing the so-called secretory neuroses. Again the peristalsis and functions of the large or small bowel may be disturbed by reflex influences giving rise to decreased or deficient peristalsis, with constipation, flatulence or diarrhœa, so-called intestinal indigestion. This appendicular dyspepsia has been well, though incompletely defined by Mansell as "a group of symptoms and perhaps signs which point so strongly to organic disease of the stomach or duodenum that it is only by a most careful history or by

supervention of definite appendicular symptoms that a correct diagnosis is possible."

Furthermore, organic diseases of other organs of the abdomen are even now being connected with the functional disturbances due to the presence of chronic appendicitis or to a chronic bacteremia or toxæmia induced thereby. It is more than a suspicion that gastric and duodenal ulcer, and inflammatory diseases of the biliary and pancreatic tracts may in a percentage owe their origin to a chronically diseased appendix. Tubal disease and sterility of the female also has been shown to be a consequence of appendicular disease in many cases. To-day no question enjoys more unanimity of opinion than the early operative treatment of acute appendicitis. This, however, should not lead us to view with complacency the frequent results of neglect in acute appendicitis which, despite a universal knowledge of the disease, retains its "Captaincy in the Army of Death." Of acute lesions of the abdominal viscera however, opportunities to observe widespread effects of the disease are rare in comparison with our experience of twenty or even ten years ago. Would that the same statement could be made of chronic inflammatory and the less frequent neoplastic diseases of the appendix.

Rarely a day passes without bringing its opportunity to the surgeon to dispel the delusion of a subacute gastric or some fanciful upper abdominal neurosis in the operative demonstration of a chronically diseased appendix. These are mistakes of interpretation of the language of living pathology, which I regret to say, frequently condemn the sufferer to chronic invalidism or write his epitaph as a martyr to medical procrastination.

The practical value of a knowledge of living pathology lies, not alone in increased accuracy of diagnosis, but in the recognition of certain limitations of diagnostic possibility. It is beyond the power of man to differentiate in certain instances, chronic disease of the gall bladder, stomach, duodenum, pancreas and appendix. Living pathology has taught us that disease of one or the other of these organs, may and usually does destroy their harmony of function and that clinical symptoms are but discordant notes common to disease processes in all. The gastric symptoms of chronic pancreatic lymphangitis, cholecystic and appendicular disease express their effect on the

gastric mucosa of toxins reabsorbed from the diseased area or functional disturbances depending upon a communal nerve supply. So rarely do we fail to find an organic basis for these digestive troubles that dyspepsia as a clinical entity has practically passed into the oblivion of surgical antiquity. It is true that disturbances in the sensory, secretory and motor functions of the stomach are infrequently dependent upon systemic disease, or more rarely upon defects in the mechanism of nervous control, but the entire digestive tract must be studied carefully and systematically before gastric symptoms can be attributed to these causes and termed idiopathic, which in the great majority of cases is but an admission of our inability to interpret the living pathology. I have been misled to open the abdomen in the presence of predominant gastric symptoms only to find the pyloric sphincter to be the seat of spasm of toxic or reflex appendiceal irritation as evidenced by the complete relief of symptoms following appendectomy. On more than one occasion I have opened the stomach in search of the local cause of postprandial pain, hyperchlorhydria or pylorospasm, to find disappointment in the presence of a perfectly healthy gastric mucosa. And even hematemesis has been disproven as a symptom of simple ulceration in a number of instances and found to depend upon the toxic effect on the arterioles of the gastric circulation of poisons generated in a distant and diseased organ with the production of simple erosion of the mucous membrane as described by Dieulafoy. Chronic simple ulcer of the stomach and duodenum is believed by Mayo, Robson and others to result from oral and other septic processes, and recently the frequent association of chronic appendicitis with duodenal ulcer has been explained in the same manner.

It is not my purpose to discourage attempts at differential diagnosis for this is of the utmost importance and, as a rule, possible, but safer by far is the physician who recognizes the voice common to the living pathology of various structures, than he who attempts to localize the trouble to a particular organ, and then attribute its complaint to functional derangements. Consider the influence of our knowledge of the living pathology of the pancreas and biliary passages on the modern con-

ception of their diseases. Bacteriological investigation of the contents of the diseased gall-bladder has clarified our ideas of the origin of cholecystic disease and the living pathologist traces in sequential order, the steps in the progress of the disease from the reception of the micro-organisms through the stages of acute and chronic inflammations and their complications, gallstone formation, pre-cancerous tissue change and finally, carcinoma. In 1896, Riedel, in operating on a case of gallstone disease discovered chronic pancreatitis, which he described in differentiation from primary cancer of the head of the organ. Since that time the opportunity for observation during life which has been afforded by surgery has established the fact that the pancreas is frequently the seat of chronic inflammatory alterations. The touch of the surgeon during life has revealed that which post-mortem pathology had overlooked. It has been possible to trace the path of infection from the gall bladder through the lymphatics lying in the right free border of the gastro-hepatic omentum to the peripancreatic plexus. The lymph nodes clustering about the pancreas can be seen enlarged and from their anastomosis with the intrapancreatic lymphatics a fair assumption has been drawn that the pancreas is not infrequently infected in this manner. To this early inflammatory disease of the organ the name pancreatic lymphangitis has been applied. That it is a precursor of the more serious and pronounced later changes in the pancreas there can be no doubt. But this fact of living pathology has supplied us with the key for treatment of this form of pancreatitis through drainage of the biliary tract. When the source of the lymphatic infection is thus removed, recovery of the pancreas is the rule as has been demonstrated on occasions when subsequent operation became necessary for some other reason, as well as by the subsidence of symptoms in the cases upon which the operation had been performed.

The early hope of the surgical relief of diabetes when this condition is secondary to chronic inflammatory processes in the pancreas has not been fulfilled. Destruction of the islands of Langerhans by cicatricial contraction of inflammatory tissue bespeaks a process too far advanced for relief by drainage. It denoted a para-infectious condition—the termi-

nal change in the surgical conception of a process that probably would have been amenable to operation at an earlier stage, had his physician heard in the digestive complaints, not the voice of functional disturbance but an echo of the cry of distant organic disease.

Obstinate constipation is another field previously exclusively medical and beset with unfounded theories, that is now being subjected to the search of the living pathologist. Mr. Arbuthnot Lane, who is most active in this work has described with great plausibility certain mechanical factors in the form of bands and kinks which embarrass peristalsis and give rise to intestinal stasis. Whether or not we are willing to go all the way with him in his ideas, we must acknowledge that there is truth at the bottom of the well and that it will in the end prevail by demonstration upon the living subject.

The frequency of duodenal ulcer is a fact that we owe exclusively to the autopsy *in vivo*. Only a decade ago ulcer of the duodenum was considered to be a rare lesion and its symptoms were parading under many painful gastro-enterological names, such as hyperchlorhydria, gastralgia, chronic gastritis, etc. Gastric ulcer was thought to be by far more common than ulcer of the duodenum. To-day the order of frequency is reversed and a typical syndrome of symptoms has been worked out by means of which the more typical cases may be diagnosed with great accuracy. Still there are many ulcers which give but little evidence of their presence and it is easy to overlook the lesion.

If further illustration be needed to prove our contention of the radical difference between living and dead pathology, we need but to contrast the post-mortem records of any large hospital with the clinical statistics based upon operative findings. Search the records of any pathological laboratory, and you will rarely find an instance of peritonitis, secondary to a perforation of a chronic calloused ulcer of the duodenum. Yet it has been our privilege to operate on thirty patients during the past five years with this alarming complication of ulcer, and with twenty-nine recoveries.

Moynihan tells us that the necropsy records of the past forty years in Guy's Hospital, contain only one instance of death from calculous

obstruction of the common bile duct. Would not clinical teaching, based upon these records be highly erroneous? The practical significance of the matter is, that numerous patients die as a result of these conditions outside of the hospital, and that the few are saved by following the advice of an intelligent physician trained in living pathology, who realizes the necessity of immediate surgical consultation. Bacteriological study, in cases of ruptured gastric and duodenal ulcers has taught us furthermore, that during the first twelve hours the peritoneal fluid is frequently sterile, and in this we find reason for the almost perfect success in early operative interference. This early sterility of the extravasated fluid enables us, not only to undertake closure of the perforation, but plication of the duodenum and posterior gastro-enterostomy as well, procedures that relieve the patient of future ulcer trouble in the great majority of cases, and offer an assurance of operative success almost equal to the certainty of death, when with the lapse of a few hours the peritoneum has become infected. The profound predisposition to cancer of a chronically ulcerated area of the pyloric antrum is a new and startling fact exposed to the light of day by the aseptic scalpel. Knowledge of the cellular pathology of neoplastic tissue removed at operation has completely disarranged our ideas of cancerous change, and forms the basis of the only rational treatment, early and radical excision. The microscopic demonstration of the very earliest malignant changes in the bases of chronic ulcers of the stomach in association with pre-cancerous inflammatory tissue states has added the necessity of excision of areas of potential carcinoma. Indeed this relationship has been so definitely proven that it is the aim of every surgeon whose judgment is based upon living pathology, to prevent the necessity of radical operations on the uterus, stomach, breast and other organs by the interception of malignant degeneration of primarily benign tissue changes.

In a series of more than five hundred cases of tumors of the mammary gland compiled from the records of the German Hospital, we found that approximately two years had elapsed, on the average, between the time of the discovery of the lump in the breast, and the time of operation. May I venture the predic-

tion that the succeeding ten years will elevate the knowledge of living pathology to that standard when this fatal procrastination will not be tolerated even by the laity!

May I venture to call attention to another of the contributions of living pathology towards the saving of human life! This relates to our present knowledge of renal tuberculosis. Formerly when death occurred from tuberculosis of the kidney it was the rule for advanced tuberculous processes to be found elsewhere. Very frequently both kidneys were involved and, as a rule, the bladder showed extensive tuberculous ulceration. By the study of renal tuberculosis in motion, several important facts have been apparent. First, that tuberculosis of the bladder is never primary but always secondary to disease of the upper urinary tract or of the genital tract, more frequently however following infection of the kidney. Secondly, it has been found that in the beginning surgical tuberculosis of the kidney is usually unilateral. Passing entirely by the abstract question of whether the infection may be distinctly primary or is secondary to tuberculosis of some other portion of the body, it is true at least, that the renal lesion may be the only active focus of tuberculosis in the body. This knowledge has led to nephrectomy for renal tuberculosis by which many lives have been saved.

We could multiply examples in the citation of various surgical diseases of the abdominal viscera to illustrate the contributions to living pathology to a clearer understanding of these conditions which so frequently manifest themselves through the medium of gastric symptoms, but I trust enough have been used to give you a glimpse of the pathway of progress.

Only by standing at the elbow of the surgeon, let me repeat, can the internist hope to attain an equal proficiency in diagnosis and the proper conception of treatment in these conditions. Observe that I say the elbow of the *surgeon*, not the operator, for there is a sharp distinction between the mechanical practitioner of surgical art and the true surgeon who is a specialist not in operating but in the field of surgical disease, skilled in diagnosis and prognosis, aware of the dangers and limitations of his art, and as ready to withhold his hand at the bidding of science and conscience

as he is bold to attack the condition which, unchecked, threatens the patient's welfare.

A duty, Goethe says, is a demand of the hour. The present in surgery demands early recognition, on the part of the practitioner of medicine, of living pathology or a willingness to employ every means to this attainment. To those whose symptomatic treatment of surgical disease is gilded with the self delusion of rationality, I would commend that sublime utterance Shakespeare delivered through the lips of Palonious—

"But above all to thine own self be true,
And it must follow as the night the day,
Thou can'st not then be false to any man."

1634 Walnut Street.

PROGRESS IN RECORDING BIRTHS AND DEATHS IN VIRGINIA.*

By W. A. PLECKER, M. D., Richmond, Va.

Assistant Registrar of Vital Statistics, Virginia Health Department.

When the last legislature passed the Vital Statistic Act, it imposed upon the State Department of Health, in its enforcement, a difficult task naturally.

The failure to appropriate more than half enough funds greatly enhanced this difficulty.

Even the purpose to relieve the department of the payment of the printing bill, amounting on the first order to nearly \$1,500, was thwarted by the unfortunate wording of that section of the law.

After careful consideration, it was decided in taking up the work to attempt only a portion of what should be done, and to use our resources in perfecting the organization and securing the actual filing and arrangement of certificates.

We are, of course, prevented from the expensive work of compiling, and making available for use in health work, the mass of material we are accumulating.

We are able to announce, however, after four months of effort, that the work of organization is progressing even beyond expectations.

While more could have been accomplished by visitations, we have met with marked success by a careful system of correspondence and education.

So far, no known trouble on the part of our

registrars, physicians and others has failed to receive investigation and correction, as far as it has been possible.

As organization becomes more nearly complete, reports for the early months continue to come in, and any estimate as to the number of birth and death certificates received is continually changing.

We are, however, even now securing close to the average required by the Census Department for a place on the registration area.

Our educational methods have been an appeal to the plain common sense of the masses.

They have learned to appreciate in a surprisingly quick manner the possible advantage to themselves individually and collectively of these statistical records.

Our registrars have entered upon the work with a zeal and spirit far in excess of what could have been expected, when the small remuneration for their services is considered.

One of the surprises of the undertaking has been the manner with which the mountain section and great Southwest have assumed the lead of the counties.

It is needless to say that our Virginia physicians have not disappointed us in the manner in which they have responded to our appeals. They are everywhere doing their part in reporting births and deaths, and in teaching the people the value and importance of the measure.

Study of the personnel of the profession by counties, and by the style of the individual certificates, shows that those who are informed as to the importance of the undertaking, and are actively aiding in making it a success, are in the majority.

The second class who constitute the greater portion of the remainder are those who have the knowledge and good intention, but are lacking in the habit and training of doing things with scientific accuracy and promptness.

These are apt to be the same in all branches of their professional work.

This is the class of whom the registrars write that they are negligent in reporting, and who give them a plausible excuse for not sending in their own returns promptly and completely.

While these are slow, and give much annoyance to local and State registrars, the final

*Read before the Virginia Public Health Association at Norfolk, Va., October 24, 1912.

results secured from them may be fairly good, if the local registrar knows, and demands, what he is after.

The last few comprise the number of those whose professional ideals and training are subnormal. Some of these magnify the difficulties of the work, and declare that they will not render this slight matter-of-fact service to their patrons, without additional compensation.

These send their certificates to the registrars under protest, written in pencil, and with important items of information imperfectly stated, or omitted altogether.

These very few members of the profession aid greatly in discouraging weak registrars, and in making the work only partially successful in their neighborhoods.

Of limited attainments and practice, they are usually not members of medical societies, do not read medical periodicals, or health bulletins, and cannot be reached by ordinary means.

One method of handling these few cases is to build a fire around them. By extra efforts in the education of the public in those neighborhoods, a demand is created for something better than is being gotten.

In the entire State several capable men were, at first found who labored under the misguided impression that the best way to secure favors from the Legislature was to oppose this, and other similar requests, unless paid a fee by the State.

It is believed, however, that these have without exception come to realize their error, and to look upon this slight additional labor as only an opportunity of rendering more valuable service to those who have honored them with the endearing title of "our family physician."

Lack of means compelled us at first to adopt a method which now has become a fixed purpose, and distinguishes ours from all other vital statistic bureaus of which we have knowledge.

We have not yet found a case where a courteous request would not produce a prompt response.

We have found so far no actual need to invoke the penalties of the law, though some little effort was at one time made to find a suitable case to make an example of.

Knowing, however, that we have a law that has been thoroughly tested in other States, we stand prepared, if challenged, to enforce it to the letter.

My final appeal to the medical profession of Virginia is for its complete co-operation and aid in this important undertaking.

We believe that even with our limited means we can show such results as to make the securing of a sufficient appropriation from the next Legislature an assured fact.

THE RIGHT KIDNEY---A DISQUIETING FACTOR IN THE DIAGNOSIS OF ACUTE INTRA-ABDOMINAL CONDITIONS.*

By W. L. PEPLE, M. D., Richmond, Va.

If the thumb of the right hand is laid along the lower right costal margin with the tip of the little finger resting on the anterior superior iliac spine, the palm and extended fingers will cover the Balkans of Surgery, a hotbed of disaffection and rebellion, a veritable zone of discontent.

Here lie the four allies, the gall-bladder, kidney, appendix and fallopian tube. It is not my purpose to attempt to fix individual responsibility for acts of each or all, for all, save one, are open to frontal attack, and a clever blow, well-timed and skilfully delivered, may well strike three, but the fourth must be taken in the rear, and is far oftener vulnerable to diplomacy than to open war. In other words, it is not my intent to enter into a discussion of the differential diagnosis of the diseases of these four organs, but to call attention to certain disorders of the kidney which simulate at times so closely diseases of the other three.

This is especially important because abdominal incision, even if made over the wrong organ, will do little harm and guide us to the right one. But an abdominal incision will not aid us in operating upon a kidney or ureter in need of surgery; and an unnecessary traumatism and a general anesthetic can only make worse a purely medical disease of the kidney.

I do not wish to minimize the importance of a careful differential diagnosis of the diseases of the right abdomen, but wish to im-

*Read before the Richmond Academy of Medicine and Surgery, January 14, 1913.

press the greater importance of fixing the responsibility upon the kidney when it is at fault, and of eliminating it as a factor when innocent.

ACUTE UNILATERAL NEPHRITIS.

The term "nephritis" is so inseparably linked with the name of Bright that when we hear it we instinctively picture it either as a local expression of a systemic disorder or the accompaniment of one of the acute, infectious diseases.

The term "pyelitis" carries with it the old text-book picture of chills, sweats, high fevers, pain in the back, and urine loaded with visible pus—a terminal condition bearing about the same relation to early infection as does general peritonitis to the intact appendix with an inflamed mucosa.

The picture of a blood-borne infection affecting but one kidney is to some of us novel, if not quite unique. Ordinarily, the surgeon does not see acute, abdominal infections early. When he does, time enough has usually elapsed for definite symptoms to have emerged from the chaos overshadowed by pain, and his task is made much easier.

Given a case of severe, right-sided abdominal pain with elevation of temperature, acceleration of pulse, vomiting and local tenderness, what should be our method of procedure? First, elimination of the tubes by careful vaginal examination. This should be a routine measure and it is one far too frequently neglected. If there is one point upon which surgical opinion has crystallized, it is the non-operative treatment of acute tubal infections. The next step is the elimination of the kidney, and this, to my mind, is one of the most difficult and disquieting procedures in surgical diagnosis.

If there is a second point on which surgeons have agreed it is the early operative treatment of acute infections of the appendix. The differential diagnosis is of paramount importance. If the case is one of acute, unilateral nephritis or pyelitis, there is not only no need for appendectomy, but the traumatism and the anesthetic will do the inflamed kidney positive harm.

As I have seen practically nothing written on this interesting condition, I must give the symptoms as I have observed them at the bed-

side, hoping that in the discussion, the experience of others will add definiteness to a rather meager picture.

The pain is intense and of a violent, boring character. It is far more prone to exacerbations and remissions than pain from the appendix. It seldom, if ever, begins as a general abdominal pain, but starts over the appendix. It is, has been, or at some time will be, over the kidney region in the back, though not so severe as anteriorly. The point of greatest tenderness anteriorly has been below and internal to McBurney's point. Why, I do not know. Tenderness can almost always be elicited over the kidney also by pressure from behind or on bimanual palpation of the organ. The facial expression has nothing characteristic and is never anxious. I have not observed muscular rigidity or tympany. The temperature is a variable quantity, being very high in some cases and but slightly elevated in others. The pulse keeps pace with the temperature, and has nothing characteristic about it.

The crucial test is the microscopic examination of the urine. To avoid possible sources of error, I would emphasize the necessity of excluding gonorrhea in the male by inspection, as well as questioning, and by the invariable use of the catheter in the female; for an uncatheterized specimen in the female is worse than valueless—it may be positively misleading. Furthermore, the examination should be made by one skilled in this kind of work.

Urinary findings.—In the early stage, there will be found a few red blood-cells, a few leucocytes, blood casts, fibrin casts, and epithelium from the kidney tubules. The blood and blood-casts vary in wide limits according to the severity of the case. As time passes, the blood diminishes and the pus-cells increase in number. When the pelvis of the kidney is most affected, the blood-casts are absent and pus-cells more abundant.

The following case-histories will illustrate the condition described:

Case I.—Male, single; white; aged 38; no history of a previous similar attack. Following a rather free partaking of alcoholics, he was seized with violent, right abdominal pain, high temperature, rapid pulse, and vomiting. He was seen about six hours after the attack began. There was marked tenderness a little

below and internal to McBurney's point, but no rigidity. The pain had also been in the kidney region behind. Bimanual pressure over the kidney revealed a very tender organ.

Diagnosis.—Acute, right, unilateral nephritis. Having observed similar cases, I predicted the urinary findings for three days, and was not a little pleased to have them subsequently verified: 1st day.—A few blood-cells, red and white; a few blood-casts and kidney epithelium. 2nd day.—Less blood and more pus-cells. 3rd day.—A much freer showing of pus.

Case II.—Female, white, married, aged 20; menses normal; never pregnant. She came with a diagnosis of acute appendicitis. One year before she had an attack of pain over the ureters, more on the left than on the right side, accompanied by bloody urine lasting several days; then followed an interval of several months without further trouble. She then suffered with pain in the back and over the ureters, and was on and off the bed for about five weeks with paroxysmal pains at intervals of several days. At times, there was blood in the urine as small clots but it was not cloudy. She now developed chills which were without any regular periodicity. These gradually disappeared and she was up and about again. While walking from a neighbor's, she was seized with sudden pain over the appendix so severe that she reached home with difficulty. The pain continuing, she was brought to the hospital, the diagnosis being acute appendicitis. The temperature was normal, the pulse rapid, and there was no rigidity or distention. Marked tenderness a little below and internal to McBurney's point and to a less degree over the kidney front and rear, was present. Vaginal examination was negative. Urinalysis showed a small amount of blood and pus, renal epithelium and blood-casts.

Diagnosis.—Diffuse nephritis and pyelitis.

In a few days, there was a flocculent cloud of pus in the urine. The temperature varied from 100 to 103 degrees. The pain continued paroxysmally; the tenderness over the appendix persisted, but subsided with the rest of the symptoms. A radiograph was now taken and proved negative. The appendix, which was slightly, if at all, diseased, was then removed.

Case III.—White, male, single, aged 21, gave

rather a unique history in that his appendix, chronically inflamed and badly adherent, had been removed several years previously. After six weeks confinement to bed because of a fractured thigh, while convalescent he was seized with violent pain in the right abdomen. The pain was rather high, and as the appendix had been removed, the case was diagnosed as acute cholecystitis. Microscopic examination showed a large number of blood and fibrin casts, which fixed the responsibility on the kidney.

Case IV.—White, female, single, stenographer, aged 22, gave a history of several attacks slight in character and short in duration. The present attack was far more severe than any other. The pain was very severe and paroxysmal, beginning in the lumbar region and localizing over the appendix. Rigidity and tympany were absent. There was tenderness over the appendix as well as in the lumbar region.

Diagnosis.—Acute, unilateral nephritis, confirmed by microscopic examination.

The patient states that in the past four years she has had several attacks which have yielded readily to urinary antiseptics.

Case V.—White, female, single, aged 22, gave a history of ovarian neuralgia two years before the present trouble. A temperature of 100 degrees was preceded by three days of pain over the appendix. The diagnosis of appendicitis was made; and I was called in to operate when all preparations had been made. Hasty examination revealed a very tender spot over the appendix. A normal appendix was removed. The temperature and pain persisted; and a few days later the urine showed a heavy, flocculent cloud of pus. She had a protracted convalescence, but made a good recovery. This was, to my mind, a case of pyelitis from the first, that a more painstaking examination would have revealed.

Case VI.—Colored, male, aged 45, farmer, was suddenly seized with violent pain in the right lumbar region, radiating anteriorly. On palpation, the kidney was found to be quite tender, front and rear. A tentative diagnosis of stone was made. Urinalysis showed a few leucocytes and blood-cells; radiograph was negative.

Diagnosis.—Acute, right unilateral nephritis.

Under urinary antiseptics, recovery was rapid.

STONE IN THE KIDNEY AND URETER.

If one doubts the confusion of symptoms of stone with those of appendicitis, let him look over a series of cases of stone and see what a goodly percentage of them have scars over McBurney's point. We have all had the experience of opening the abdomen and finding an appendix the pathology of which would in no way warrant the severity of symptoms presented. I believe that a careful subsequent analysis of the urine and a radiograph taken by a competent operator will do more to aid us in arriving at a correct solution of the trouble than a second operation and a search for adhesions or a kink of Lane.

The symptoms of stone in the right kidney or ureter are, briefly, sudden, usually violent, pain, never starting as a general abdominal pain, but beginning in the lumbar region and radiating to the appendicular region, or *vice versa*. I have rarely observed the reflex pain in the head of the penis, so frequently noted in print. Fever is not a usual accompaniment. The whole general picture is one less of surgical urgency than an intra-abdominal inflammation.

Careful microscopic examination of the urine will almost invariably show blood and epithelium from the kidney, pelvis or ureter; and indicates the need of a confirmatory radiograph. I am indebted to two of my colleagues for invaluable assistance in the foregoing and following cases: Dr. E. Guy Hopkins, for the pathologic, and Dr. A. L. Gray for the radiographic findings. It has been a matter of intense interest to watch the work of these two men. Almost invariably they have checked one another, not only as to the presence of stone, but as to its anatomical location as well.

The following case will illustrate the confusion of symptoms and the value of careful routine examination.

Case I.—White, female, aged 36, married, mother of three children; previous history negative. About two years ago, she had an attack of pain in her right side not very severe. Since this time she has had numerous attacks, some slight, some severe and becoming more severe of late. The attacks seem to bear a definite relation to her menstrual periods, coming almost always with the beginning or ter-

mination of the menses and, of late, almost of monthly occurrence. The pain is very severe, beginning over the appendix and radiating down toward the right tube. At times it was also in the lumbar region. There was never a rise of temperature. The last attack occurred about ten days before coming to the hospital; and the diagnosis was recurrent appendicitis.

Vaginal examination revealed a badly lacerated cervix and perineum, and a retroverted uterus; the tubes and ovaries were normal. Microscopic examination revealed a few blood-cells and quite a number of cells from the kidney pelvis.

Diagnosis.—Stone in the pelvis of the kidney. A radiographic examination was then made, the report from it being a stone, the size of a cherry seed in the pelvis of the kidney.

Upon operation this was verified, and the stone removed through a small slit in the pelvis.

With the lacerated cervix, the retroverted uterus and the very definite relation between the menses and the attacks of pain; with the diagnosis of appendicitis, it would have been very easy to fall into error, do a section, suspend the uterus and remove the appendix. These procedures, however, would not have improved the symptoms from which she sought relief.

Case II.—White, male, aged 32, clerk: gave a history of his first attack of pain about eight years previously. Up until the present year, he has had about twelve attacks. During the past year, there have been fifteen attacks, which are increasing in frequency and severity. The pain is in the right side, above and to the inner side of McBurney's point. It never radiates down the thigh or into the head of the penis. It has never been lumbar in character. It is so severe that two H. M. C. tablets have failed to relieve him. There has never been any elevation of temperature. There has never been any tenderness anywhere; never any macroscopic blood in the urine. With two attacks, there was a decided icteric tinge to the skin. The location of the pain, coupled with jaundice, strongly suggested gall-stones. Urinalysis showed blood and kidney epithelium. A radiograph revealed a stone in the kidney substance. On operation, a stone was removed from the cortico-medullary junction.

This case also illustrates how the pain and other physical signs may mislead, and emphasized the value of routine effort to eliminate the kidney.

Before closing, I wish to call attention to two other peculiar conditions, which I have not seen described, which bear a close relation to one another and seem based on faulty metabolism. I call attention to them because they seem to me definite clinical entities with a similar if not an identical origin. The one is an accompaniment of marked oxaluria, the other of a marked acidosis usually associated with pregnancy. By reporting a typical case of each, I can best describe their symptomatology.

Case I.—A white female, aged 28, married, no children, while convalescent from an operation for a very bad case of pus-tubes, in which both tubes and the appendix were removed and free drainage used, was seized with a violent, right-kidney colic which required repeated doses of morphine to relieve. After recovering, I lost sight of her for a year, when she returned with an almost constant pain in her right side, beginning in the back and running down to the appendicular region. In addition to the usual pain, there were frequent violent paroxysms.

The tubes and the appendix had been eliminated. Urinalysis showed blood-cells and a very abundant deposit of oxalates. I felt confident that a radiograph would reveal stone. She was given an ounce of castor oil preliminary to taking the radiograph; and stated the next day that the oil had cured her. The plate was negative, and she was sure that no stone had passed. She has no attacks so long as the bowels are kept open and the oxalates held in solution by giving mineral acids. Constipation and faulty metabolism, as exhibited in the oxaluria, seem here a reasonable explanation of her condition. Why the pain should be unilateral I do not attempt to explain. Unfortunately, her interest in her case was of the purely practical kind, which stopped with the cessation of pain, so that I was unable to note the subsequent condition of the urine. I have seen a few other cases under this group, but none so typical.

Case II.—This illustrates the second group. A white female, aged 28, married, had suffered several attacks of appendicitis in

past years. When about six months pregnant, she was taken with a severe pain over the appendix accompanied by persistent vomiting, elevation of temperature, rapid pulse, and exquisite tenderness over McBurney's point. Muscular rigidity, tympany and lumbar tenderness were absent. The condition had existed several days without improvement. Vaginal examination revealed a normally pregnant uterus. Urinalysis showed abundant acetone and diacetic acid; otherwise, there was nothing significant.

She was given one drachm of sodium bicarbonate by mouth every hour, and saline by rectum, following which the urine became alkaline and all symptoms grew better. She was then put on a starchy diet, and the acetone and diacetic acid quickly disappeared. The appendix was then removed. It bore evidence of former attacks, but its condition would hardly have warranted the rather severe symptoms occurring just prior to operation.

I have observed several cases with histories almost identical with this one, usually in pregnant women, but time will not permit a further recitation.

To summarize: There is in addition to the acute inflammation of the kidney substance and its pelvis and the symptoms due to the presence of stone, a definite group of symptoms closely resembling those of acute appendicitis. This condition seems to be due to faulty metabolism, evidenced, in the first instance, by oxaluria; and in the second, by urine loaded with acetone and diacetic acid.

Whether the pain is colonic or nephritic, I do not know. It certainly bears a close resemblance to the pain of appendicular or tubal inflammation. The absence of rigidity and tympany, and the primary local origin of the pain are the chief differential signs. Clearing the alimentary canal and the administration of a mineral acid, to hold the oxalates in solution, give relief in the one; while neutralization of the urine with alkalines and the administration of starchy foods correct the other.

In making a diagnosis of the second condition, one should exercise the greatest caution, for acidosis frequently accompanies intra-abdominal inflammation; and both acetone and diacetic acid are often found in these cases, especially when food has been withheld for

any length of time. On the other hand, recognition of a marked acidosis is always of the highest importance whether it be associated with a true surgical condition or be but a signal of a purely medical one, for the administration of a general anesthetic in either instance by exciting the elaboration of more toxic substances and crippling the organs of elimination, may easily tip the already lightly balanced scale and cause a fatal termination.

I realize fully that acute inflammations of the right abdomen and especially of the appendix, are matters for early decision and radical action, and that delay and temporizing may cost a life. There are cases so evident, so clear, so urgent, that physical findings alone may be sufficient when laboratory accessories are absent or inconvenient. But there are many, many other cases less urgent in which the question of life and death is not uppermost. In these, at least, let us make routine vaginal examinations to exclude the tubes, and careful microscopic examinations of the urine, and if this be suggestive, a radiograph of the kidney and ureter, and thus exclude that most disquieting factor, the right kidney.

1000 West Grace Street.

SURGICAL CARE OF THE SKIN.

By J. LEWIS RIGGLES, M. D., Washington, D. C.
Associate Obstetrician, Columbia Hospital.

How much mechanically and how little chemically should we treat the skin before wounding is certainly a question yet unsettled, although excellent results have been attained by many of the different procedures now in vogue.

The skin of the blonde and that of children is unable to withstand the violent scrubbing, which is often given it; while that of the brunette many times exposed to the rays of the sun shows little change in color and tenderness. Chemicals and scrubbing do not produce inflammation and necrosis of the skin in the latter, but, in the former inflammation, at least, occurs.

A young man, an athlete from Princeton, with many of the characteristics of an Indian, came to me six days after an accident. While chopping wood in his father's barnyard, the axe missed its mark, cut through his shoe and

sock, making a cut in the dorsum of his foot about three inches in length. The bleeding was stopped with hydrant water and, with a large straight needle from his mother's sewing-basket and wrapping string, the wound was neatly stitched together. The wound six days later was dry and showed no signs of inflammation in either the stitch holes or in the wound itself. I removed the string and let him go without sterile dressings—the sock being the only protection.

I suggest this case only because of its fortunate outcome, and to remind us of the many reported cases of healing by first intention of stab wounds, and large abdominal cuts, criminal or otherwise, that have been closed by any suture material at hand. The skin was not a factor in these cases, as time would not allow even washing with soap and water or any chemical intervention.

My earliest teaching was that the skin of the hands and arms of the operator and assistants should be thoroughly macerated, or softened as it was called, for fifteen minutes, and then immersed into the different chemicals, principally bichloride, permanganate, alcohol, etc. The rubber glove (then a new issue) was filled with corrosive sublimate, pulled over the red hand with the hope that the contained fluid would control what sweat glands might extrude on the surface of the skin. This technique was faulty because the glove was frequently punctured, and the operator's hand, full of bacteria, contaminated the field.

The area to be operated upon was treated in much the same manner, but it escaped some of the bathing with bichloride that the operator's hand had to withstand. With daily regularity, the hands and arms of the surgeon, his assistants and nurses underwent this torture, and the lowered vitality of the skin caused fissures, hang-nails, and even superficial ulcerations discharging pus. Post-operative wounds were redressed by internes, whose hands were carriers of many bacteria, with the result that primary union was not common.

I learn that the Mayos made experiments of using soap and water alone; perfect results were obtained. The operator, however, scrupulously observed his asepsis. Gentleness in handling the skin I consider of the greatest importance, and a detail, in many cases overlooked, the care of the nails. No steel or

scratching instrument should be used under the nails, either in or away from the hospital, as grooves made in this way enhance the collection of dirt and render them impossible of cleaning.

I find that by filling the space under the nail with ivory soap, the orange stick very effectively empties the dirt and soap, provided there are no cuts or grooves.

Bichloride, formalin, iodine, carbolic, permanganate, and oxalic are chemical irritants, but when not used too constantly and in too strong solution assist our technique principally by inhibiting the activity of the numerous bacteria found in the skin.

Grossish's experiments proved that if the skin be left dry and not bruised by scrubbing, the mouths of the glands would remain open to receive the iodine-alcohol solution. The bacteria are found at varying depths of the skin glands and hair follicles, and it is very doubtful that bichloride and most all other antiseptics reach deep enough in these pits.

A very good illustration of this principal is a case of pustular acne, which is impossible to cure because the mouth of the gland is closed, preventing even iodine from attacking the pus sac below.

Bovee's experiments with culture tests of the skin showed practical results of alcohol and iodine. There was no maceration by scrubbing, poulticing or bruising preceding the operation in his cases.

Sterilization of the surgeon's hands with iodine solution is impracticable because of the varying degrees of sensibility and idiosyncrasy of the individual.

A common mistake in the technique is the including of skin when clamps are applied to bleeding points. Death of the part usually follows, with sloughing and infection in this and the surrounding area. Freezing with ethyl chloride and the careless use of very hot solutions I consider harmful to the integument.

The following reference is from a recent Vienna medical journal, entitled, "Asepsis and Antisepsis," by A. Fraenkel. I am indebted to Dr. LeConte for its translation.

In this review, he says, it seems that the present widespread use of Grossish's painting with iodine has given an experimental proof that the skin of the field of operation can be

considered as aseptic in the great majority of cases, where a pyogenic infection does not already exist. Since the mere painting of the unwashed skin with a drug having little or no bactericidal power prevents suppuration, it may be implied that the normal skin bacteria have no pathogenic properties as a rule. It has been conclusively proven that the inhibition of the skin bacteria attempted and in part attained by the iodine painting does not last longer than the first incision.

Fraenkel has treated 250 wounds of every possible kind from the dispensary without disinfection, and observed in only two cases a delayed healing with granulation tissue.

The presence of bacteria and asepsis are not inimical to one another as infinite examples teach. Latent bacteria can be roused into pathogenic activity, in the first place, by disinfectants, which harm the tissues, and, in the second place, *a priori* pathogenic bacteria through some means be raised in their local and general virulence.

Especially in the province of accidental wounds should the practice of asepsis be adhered to and the weighty investigation cannot disprove that simple cleansing will do the wounds less harm than the action of chemical disinfectants.

Few of us are willing to subject our patients to any danger, or to accept such radical statements as those of Dr. Fraenkel; yet, I believe, there is much room for study in this matter.

The resistance of the skin in patients debilitated from wasting diseases is another issue, and has not been considered in this paper.

The Champlain.

MANAGEMENT OF THE OUTBREAK OF DIPHTHERIA IN THE PUBLIC SCHOOL OF HIGHLAND PARK, VA.*

By A. L. MARTIN, M. D., Highland Park, Va.
Health Officer.

and

W. A. SHEPHERD, M. D., Richmond, Va.
Director of Microscopical Laboratories, Medical College of Va.

On October 5th, 1911, three cases of diphtheria developed in the Highland Park School, and on October 7th, two more cases. At this point, the local Health Board suspended the

*Read before the Virginia Public Health Association, at Norfolk, Va., October 24, 1912.

school for one week, and adopted individual drinking cups in the hope that this measure might meet the situation. However, the disease continued to spread. From October 10th to 15th three cases developed. The town health officer visited the school and examined the children's throats. Many of them showed slight catarrhal conditions, but no clinical signs of diphtheria. The disease continued on the increase, and from October 18th to November 8th, five cases developed, making in all thirteen cases in children attending the school.

Upon the recommendation of State Health Commissioner, it was then decided to make a bacteriological examination of each child's throat. Accordingly, on November 13th, swabs were taken from the throats of 45 of the children in that room at the school where the greatest number of cases had developed. Of these 45 specimens, *nine* proved positive. On the following day 75 swabs were taken, of which *eight* were positive. In all, from November 13th to December 1st, 362 swabs from children's throats were examined, and of these 32 or 8.8 per cent. were positive. When a child was found to be harboring the bacillus diphtheriæ, it was sent home and quarantined together with all of the other children of the household, and where the parents did not call in a physician, they were instructed to use antiseptic gargles, and to swab the children's throats with spirits of turpentine. After five days, release cultures were obtained, and if all in the household were negative, the quarantine was raised. If not, subsequent cultures were obtained until this result was reached. Children who stayed away from school to avoid the examination were examined when they returned, and were sent home to await the report of the bacteriologist. The majority of the infected children were returned to school in five days, negative release cultures having been obtained on them. The results were entirely satisfactory. There has been no case of diphtheria since that time in the town of Highland Park.

There was some difficulty in dealing with those people whose family physicians had told them there were no signs of diphtheria in their children's throats. Naturally, they could not see how the children could harbor the disease germs without giving some visible signs of it.

During the period of this outbreak, public

lectures were given to mothers by means of which it was sought to impress them with the main facts concerning the communicability of the disease, and the methods for combating it, with especial emphasis upon the fact that a healthy child having the germs in its throat might transmit the disease to another, although not at any time manifesting the disease itself.

In spite of this educational work, much prejudice was encountered, and in several instances quarantine was broken and fines imposed. However, the better class of people were heartily in sympathy with the work, and aided the authorities in every way possible.

This report is made because the eminently satisfactory result obtained should encourage the use of the methods employed instead of the common custom of closing the school with its economic loss and usually unsatisfactory result.

Clinical Reports.

CASE OF HEMORRHAGIC TUMOR OF THE PANCREAS.*

By FRANCIS B. BISHOP, M. D., Washington, D. C.

Mrs. McC., aged 70, and for many years the proprietor of a successful mercantile business in this city, consulted me at the suggestion of her physician, Dr. Dye.

The history, as given by the patient, was briefly as follows: Had been ill for several months. Great weakness, nausea, and fulgurating pains in abdomen and hypo- and epi-gastric regions, numbness of the extremities—especially the soles of both feet. Inclined to constipation. The superficial and deep reflexes were fairly normal; some unsteadiness in standing with eyes closed. The pupil reflexes were normal to light and accommodation. No pains in upper or lower extremities. Pains in region of stomach and abdomen. Liver showed increased size and density to palpation and percussion. Abdomen distended. The urine in 24 hours was only 1300 Cc., with a specific gravity of 1010. About 31 grammes of solids in 24 hours. A slight trace of albumen. The examination

*Case report presented before the Medical and Surgical Society of the District of Columbia, November 7, 1912.

showed the presence of iodine. Blood pressure—99.

On inquiry, Dr. Dye informed me that she had been taking iodide of potassium, and that the abdomen had been opened, an exploratory incision having been made, and that they had found a hemorrhagic tumor of the pancreas,—that the incision had been closed of course without removing the tumor.

She came to me especially to see if I could relieve the numbness of the extremities.

Treatment.—A metal electrode, covering the two lower lumbar and the three upper dorsal vertebrae, formed the positive, and a metal plate upon the platform upon which the feet rested, with shoes removed, formed the negative electrode. A descending current by means of the extra spark gap, bi-polar static application, was allowed to pass for half hour at a time every other day, with not over half inch of spark at each gap. There was no sensation to the patient; in fact, she did not think that she was getting any current until a vacuum tube passed over the body showed a decided violet color.

After ten treatments by this method, the numbness of the extremities had disappeared, the urine passed in 24 hours was now 1500 Cc., specific gravity 1015, which showed an increase of elimination of solids. The blood pressure was now 110, Riva-Rocci. She said that she felt better and stronger in every way, and wished to continue her treatments.

The feet electrode was now changed for one over the abdomen, and the same treatment continued for three months.

I do not claim that the tumor has been cured, or that the patient is well, but she says that she feels perfectly well. She has been attending closely to her business, has made several business trips to New York, Baltimore, and other places. She has the appearance of a woman in good health.

This case was presented on account of the known pathological condition, and to show that mild currents continued over a longer period of time are more to be desired in the treatment of elderly people than stronger currents. The latter are liable to exhaust the nerve centers, and thereby to inhibit their metabolic action, instead of toning them up and gently urging them to perform the duty that is so much to be desired, in most cases.

1913 I Street, N. W.

Proceedings of Societies, Etc.

MEDICAL AND SURGICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

Reported by H. H. HAZEN, M. D.

This Society met November 7, 1912, being called to order by the president, Dr. Henry P. Parker.

Dr. McKimmie reported a *Case of Tic or Chorea of the Larynx in a Young Man*. There were spasmodic contractions of vocal cord, except when using the voice. The condition followed influenza. There was a marked expiratory grunt with no preliminary inspiration. The patient got well in two months under arsenic. In reply to a question by Dr. Hickling the narrator said that there was no mental disturbance.

Dr. Bishop presented the case history of a woman who had been ill for several months with abdominal pain and numbness of the legs. Exploratory laparotomy by Dr. Carr revealed a hemorrhagic tumor of the pancreas.† Under treatment with a mild static current the patient became better and the numbness of legs disappeared. Discussed by *Dr. Dye*, and concluding remarks by Dr. Bishop, who recommended mild currents, especially in the aged.

Dr. Morgan read the paper of the evening on *Treatment of Hydrophobia by the Ancients*.

Dr. Hickling held that there was in reality such a disease, and that it was transmitted by wolves, cats, and dogs. Said that the symptoms were practically those of tetanus, except that the muscles of deglutition were affected. The diagnosis must also be made from hysteria.

Dr. Williams regretted that Dr. Morgan had not read all of his paper. Negri bodies, he said, were not characteristic of the disease, as they were found in other conditions. He read the history of a case which he considered was one of hysteria falsely diagnosed as rabies. He recommended immediate treatment by cauterization and Bier's hyperæmia.

Dr. Vaughan reported a case that had been under his care, and said that two or three cases had been cured by injections of strong rabbit cords. He also showed a "mad stone."

†This case is reported more fully under *Clinical Reports*, Page 617.

Dr. Sowers had seen a case which at first resembled a deep cervical abscess.

Dr. Hagner thought that bone in the throat could give many of the symptoms of rabies in a dog.

Dr. Hickling thought that all dogs that acted in an unusual manner should be avoided, especially those dogs that disappeared for several days, and then returned, or those dogs that showed a change in disposition. Thought that rabies might cause a bone to stick in the throat as a result of muscular paralysis.

Dr. Fremont-Smith recommended deep cauterization with fuming nitric acid.

Dr. Morgan closed the discussion.

Analyses, Selections, Etc.

The Business of Medicine.

The medical profession is altogether too altruistic at times. We do not assail the dictum of ethics which places the evolutionary ideas of the profession at the service of the people, even when it reaches the public through the cash registers of the manufacturer and the druggists as beneficiaries in chief. We have no animadversions to offer upon the spirit which orders the discovery of the physician to be patented by someone else, lest the glory and revenue might in some way discount the usefulness of the discoverer.

The medical profession, more than this, is a victim of the ordinary economics of society, and presumably the doctor has no business with business. All of the easy mark mining-stock or get-rich-easy promoters, have a preferred list of victims in the medical guild, and their collections of pretty lithographs of useless stock certificates would fill a large public dumpcart, but there are no compensations. Even the legitimate subject of the doctor's interest in life, the patient, looks upon the physician as a necessary evil, employed in exigency and paid when expedient or, more often, not paid at all.

To begin with, the doctor spends half his time in the service of those who cannot pay, and it is poor business that he should have to spend any part of the other half of his time on those who can but who do not want to pay.

If the doctor waits long enough (but not too

long), he may, it is true, have a sort of vendor's lien on the estate of a departed client, sharing in this deferred requital with necessitous undertaker and the predilected attorney, if these latter two leave anything for the doctor.

There is a rift in the clouds, however, and the time is near when the doctors themselves will look after the business of their occupation. On this point we read with some interest that one of the Western states has proposed to inaugurate among the local societies of medical men a sort of intelligence bureau, through a committee which shall make regular lists of the non-paying patients, in order that the members of the profession may be safeguarded in this much, that they will at least know whether a patient is in the habit of paying the doctor, before the case is undertaken.

If this suggestion becomes general practice it will serve a good purpose and may lead to the next need of the profession, namely, a collection bureau composed of representatives of the profession itself, to which all known bad debtors may be reported. Such a bureau could do far more in justifying bad accounts than the usual collection agencies or lawyers can, for the whole matter would change from a purely business proposition to one of economics, based upon the element of pride first and upon the second, no less important, question of service, for the gradual refusal to treat systematic dead beats would be a natural and inevitable result.

From the earliest period of the practice of medicine until now, the doctor has been the natural prey of the whilom patient and there has been a false sense of *noblesse oblige* on the part of physicians which has compelled silence as to the abuse of them by their clientage. In these days of utilitarian practice, however, this must change and with the struggle for existence, in the clarity of better living, the parasites should be shown up and made to bear their natural share in the burden of community expense, and if there is no popular way to bring this end about, then the medical profession must arrive at its own plan. After a while we can have on every doctor's table a regular Bradstreet of local information, so far as medical practice is concerned, and the victimization of a long-suffering profession will cease.—(*Editorial, N. O. Medical and Surgical Journ.*, February, 1913.)

The "Penny Signs" in Pleurisy and Ascites.

Several years ago Professor Pitres, of Bordeaux, drew attention to a new sign in pleurisy with effusion, based upon the transmission of the sound obtained by tapping one coin on another which he termed the "signe du sou." In the *Medical Press and Circular*, October 9, 1912, it is stated that Pitres' sign may be of the greatest assistance in the diagnosis of pleural effusion, often a question of some delicacy. Janney, in a recent thesis, says the sign is also of value in ascites. In order to elicit Pitres' sign in a case of pleurisy, a coin is placed flat on the chest, in front, just below the nipple, and an assistant taps it with another coin, striking vertically. While this is being done the observer listens over the back and side of the thorax. If the interior of the thoracic cavity is occupied by a homogeneous medium, either solid or liquid, which conducts sound more perfectly than normal pulmonary tissue, the percussion sound is audible as a clear ringing silvery vibration. Consequently the "penny sign" is not pathognomonic of pleural effusion, but as massive indurations of the pulmonary parenchyma are much more uncommon than pleural effusion, this sign, taken in conjunction with the more or less complete series of other signs and symptoms, will in most cases indicate the presence of a liquid effusion into the pleural cavity. As the laws of the transmission of sound are the same in the abdomen as in the thorax. Lesieur and Rebatta have extended its use to the diagnosis of the existence of ascitic fluid in the peritoneum. In a normal abdomen we never get a silvery clear sound. Although then the "penny sign" is not pathognomonic of ascites any more than it is of pleural effusion, yet it shows the presence in the abdomen of a homogeneous medium either liquid or solid in an uninterrupted layer. Therefore, when the sign is positive we still have to differentiate ascites from a fibroid tumor or pregnancy, and as a rule this can be done by noting that, in the first case, in order to obtain the silvery tone we have to percuss in the lower parts of the abdomen, whereas in the case of a fibroid tumor or pregnancy the sign is perceived when percussing over the epigastrium.

(*Medical Record, New York.*)

A Privileged Medical Class.

In an article with this subject, subtitled

"The Latest Move of Medical Trust Monopoly—A Warning to the Profession, the Public, and Especially to State Legislatures and Medical Examining Boards," G. Frank Lydston, Chicago, accuses certain officials of the American Medical Association with attempting to "corner" everything pertaining to medicine and surgery in the United States. He believes that the army, navy or marine surgeon should be exempt from license requirement for the practice of medicine only so long as he confines his work to his official duties. Without a license, he says, no medical officer of the United States Government should be permitted to practise among civilians. With a license, he should not be permitted to do so as long as he is in office and drawing a salary from the government. When he does so practise, he is a grafter on the Government, the public and the profession. A license should not be issued him without the usual examination. He exclaims, "What an enormous experience Government medical officers have in obstetrics, gynecology and pediatrics!" Yet, it is gravely proposed not only to permit him to compete with the civil practitioner, but to grant him privileges which are denied the latter. Once the medical officer—or former medical officer—is launched in private practice, he is protected by the rigid examination for a license to which would-be civil competitors are subjected.

The Medical Reserve Corps, U. S. A., was a scheme of certain officials of the A. M. A., Lydston asserts, by which it is proposed: "1. To get its tentacles onto the army, and thereby creep close to the throne in Washington. 2. To get more of the corps and political influence through the large numbers and wide ramifications, more power by having more bribes to dispense, wherewith to win satellites and prestige." The first batch of appointees to the Medical Reserve Corps of Chicago, continues the writer, comprised the Editor-Manager-Boss [*sic*—(Editor-in-Charge, Selections, Etc.)] of the A. M. A. and twelve of his official family. The first president of the Illinois Division was an ex-president and ex-treasurer of the A. M. A.; its present vice-president is a paid employee of the A. M. A. As to the personnel of the Illinois R. C. Association, its roster contains the names of the following: The Editor of the Journal; two ex-presidents

of the A. M. A. (one a former treasurer); the assistant secretary; the local trustee; two associate editors of the *Journal*; a former trustee of the Association; two editors of subsidiary journals; the chairman of the Committee of Public Health of the A. M. A.; of the Committee on Education of the A. M. A.; a member of the Council of Chemistry and Pharmacy; three secretaries of sections.

The army commissions held by the Medical Reserve Corps confer essentially the same rights and privileges as all other army commissions, although the latter are earned by examination and the former are unearned, notwithstanding that they are supposed to be issued only after a rigid examination. Any which may have been given was in most cases a farce. Dr. Lydston produces letters from the office of the Surgeon-General, U. S. A., which, he says, proves that it is the endeavor of the "organization" to permit the members of the Medical Reserve Corps to practise medicine in the various States without the necessity of undergoing the examinations of the various boards.

The Medical Practice Act of Illinois permits the State Board of Health to issue, "at its discretion," licenses without examination to medical officers of the Army, Navy and Marine Hospital services, and to those who have passed the examinations for these services. Dr. Lydston asks, "See the 'joker'?" He urges every physician who does not believe that there should be a privileged medical class to petition his congressman to aid in breaking up the Medical Reserve Corps; to secure a new law in place of the farcical one in Paragraph 14 of the Manual for the Medical Department, U. S. A., and force the reorganization of the corps; to ask the delegates of the Legislature and State health officers and medical societies to oppose the plan advocated in the letter of the Surgeon-General; and to ascertain whether or not there is a "joker" in his own State law, and if there is, to try to have it eliminated.

The doctor says that the medical department of the Army is used by medical politicians for their own ends, and that it is at present under the control of what he calls the "Octopus" which is trying to dominate, to monopolize American medicine.

Finally, he asks, "If there are to be any special privileges, why not have a competitive ex-

amination and give everybody a chance? Is the Medical Reserve Corps, U. S. A. to be the only department of the medical service to which only the politically chosen few can be appointed—and after a fake examination, or without any examination? And why not give the preference to men of military experience rather than to obstetricians, neurologists, pediatricians, ophthalmologists, and gynecologists? Military experience and a knowledge of military surgery are not mentioned in the examination requirements. Instead of working for special privileges for its own immediate family and satellites, the A. M. A. political coterie should devote its attention to the legitimate endeavor to obtain reciprocity between the States. The present system is as absurd as it is unfair, and unworthy of the intelligence of a learned profession.

It remains to be seen whether the new administration will approve of the Medical Department of the army being made a kitchen for medical politics.

Do the privileged medical class and medical monopoly accord with the principles of democracy and the spirit of true American citizenship?

In conclusion, I would ask the medical officers of the army how they like the placing of the farcical Medical Reserve Corps on the same plane with themselves? Do they approve of the Surgeon General's A. M. A. political scheme? Do they really believe that even they themselves should enjoy special privileges—privileges denied to other medical men? If so, why?

Of this much, Washington may be assured, viz.: Behind the protest which I have made herewith will stand several million fair minded American citizens and every physician in this country, in or outside the A. M. A., who is not a beneficiary of medical trust politics. (The new administration would do well to count these men before passing on what I have herewith submitted.)

And there is more evidence to follow, all in good time."—(*Southern Practitioner*, February, 1913.)

There is a steadily decreasing number of cases of measles reported in Richmond each day, and the mortality rate continues low. The number of cases in Raleigh, N. C., has been on the increase for several weeks, though the disease seems of a mild type.

Editorial.

Money---A Pressing Need of the Legislative Committee of the Medical Society of Virginia in the Fight for Repeal of the Special License Tax.

The season has come again when the bill for repeal of the *special* license tax on physicians should claim attention from all members of the medical profession in Virginia, and through them from prospective legislators in the next General Assembly. The question of repeal is brought prominently to mind at this time, not alone because the *special* tax—commonly regarded as a legalized imposition—will soon be due and must be paid from the hard earned incomes of many who can ill afford to pay, but chiefly for the reason that aspirants for legislative honors are now entering the field for votes, in a campaign which will be decided in most instances at the approaching Democratic primary.

The Medical Society of Virginia and physicians of the State are expecting the Legislative Committee to make another fight for this measure before the next Legislature, and the feeling is general that prospects for success are brighter now than ever before, on account of the extra work imposed upon physicians by the law for registration of vital statistics.

The amount of *special* tax charged is, it is true, a hardship to many, but it is not a question of amount that is raised in seeking repeal. It is one of principle in which there is discrimination against the physician, who aids the State in many ways. With every progress in preventive medicine, the doctor is more and more becoming an asset of each community, so that the justice of our claim must, and will in time, be recognized by the larger number of fair-minded law-makers. But the subject should continue to be presented to them regularly until the mote has been removed that they may have a correct vision.

At this opportune period, however, the Legislative Committee is embarrassed by the fact that much is expected of them, although they find themselves without sufficient money to even begin their campaign. The Medical Society of Virginia at its last meeting—owing to limited funds in the treasury—made no provision for financial support in the Committee's

work, so that it appears no help may be expected from this source.

The labors of the Legislative Committee are, as we presume everyone knows, entirely gratuitous, and their work—especially that of the Chairman—is done at considerable personal sacrifice. The vast majority of doctors (who likewise pay all other taxes required of the average citizen—income, personal property, real estate, etc.), are insistent that the additional *special* tax be abolished. The repeal of the tax will mean no more to members of the Committee than it will to the profession at large; and their only reward will be an appreciation of the work they have faithfully performed.

But the doctors of Virginia must at least do their part. While the Committee are ready and willing to give their services in an effort that is intended for the benefit of every practitioner in the State, they cannot be expected to finance the work. Until the actual cash is forth-coming, nothing can be done.

The profession are, we believe, more solidly of the opinion than ever before that the bill for repeal of the *special* tax should now be passed. There are possibly a few pessimists—especially where former failure can be pointed to—who despair with the faintest repulse; but we must expect to receive blows in any fight.

It will ill-become the physician of affluence, the consultant, the specialist, the internist, the surgeon and others who have benefited by cases referred by his less fortunate professional brother, to be indifferent in his attitude either with influence or financial support toward the passage of this measure. If he has influence, he should use it for votes; and if he has means, he should likewise give something of this.

Dr. Stover writes: "The occasion for haste is due to the fact that if we are to begin our campaign before the primaries, we must secure the necessary funds at once." As many doctors may overlook this as a personal appeal, officers of local medical societies throughout Virginia should at once bring this matter to the attention of their members, and assist in raising contributions from their membership as a whole, or from individuals, as they deem best.

Remittances should be made by check or money-order to Dr. Geo. A. Stover, chairman

of Legislative Committee, South Boston, Va. If, as a matter of convenience, contributions to the fund are sent through this office, they will be forwarded to Dr. Stover, and an acknowledgment will be made in the columns of the next succeeding issue of this Journal.

The Southside Virginia Medical Association

Held its quarterly meeting in Richmond, March 11, upon invitation of honorary members in this city, whose guests they were. In the absence of the president, Dr. Bernard Barrow, Dr. C. E. Martin, of Emporia, presided. The two sessions were held in the auditorium of the University College of Medicine, the evening session being held in conjunction with the regular meeting of the Richmond Academy of Medicine and Surgery. The visitors were entertained at luncheon at the Commonwealth Club, and, upon adjournment of the evening session, were tendered a reception at the Westmoreland Club. A large number of interesting papers were read. Petersburg was selected for the place of the next meeting, which will be held the second Tuesday in June.

New Laws in North Carolina of Interest to Doctors.

Among the measures enacted into laws by the 1913 General Assembly of North Carolina, which will be of especial interest to the medical profession, are laws to provide for the registration of births and deaths; to prohibit the sale or giving away or otherwise dispensing cocaine, alpha or beta eucaine, or any mixture of either; and the child labor law.

Pellagra.

Assistant Surgeon R. M. Grimm, of the U. S. Public Health Service, in a report made on the epidemiology of Pellagra from records of 1,426 cases in Kentucky, South Carolina, and Georgia, concludes that pellagra is more prevalent among whites than the negroes, among the females than the males, and between the ages of 20 and 40 years. Insanity and mortality rates were both higher among the negroes than the whites, the insanity rate being higher among the males than the females, while the mortality rate was highest among the colored females and lowest among the white males. More cases developed among those living in small towns and villages than among those in rural districts.

Health Officer for Danville, Va.

Dr. C. C. Hudson, who has most acceptably filled the position of Assistant Health Officer of Richmond, for some time past, has just received the appointment of City Health Officer of Danville, to become effective the latter part of March.

This is a new office in Danville, recently created by the City Council, for which an appropriation of \$2,500 annually was made.

The W. Va. State Sanatorium for Tuberculosis,

Located at Terra Alta, in the Alleghany Mountains, with Dr. E. E. Clovis as Superintendent, was opened the middle of January. There are three buildings with accommodations for sixty patients.

Typhoid Fever Situation in Virginia.

The danger from the outbreak of typhoid fever recently reported in Front Royal and Riverton is now past, and the town will soon be restored to its good health. Although the danger seemed very great for a few days, the extent of the outbreak was much exaggerated.

In view of the mild winter and the large number of flies which will appear this summer in consequence, the State Board of Health has already issued a bulletin urging the necessity of taking precautions against the disease during the early Spring, as the prevalence of typhoid in this State will be determined by the precautions taken between now and the first of June.

Retreat for the Sick, Richmond, to be Rebuilt.

It has been practically decided by the boards of trustees and managers of the Retreat, to rebuild this hospital in the near future on its present site the cost of which will be in the neighborhood of \$300,000. It will continue to be a general hospital, open to all reputable city physicians. There were 751 patients at this hospital during 1912, 110 physicians being in attendance, and 2,931 days of free treatment were given in the twelve months.

Hookworm Exhibit.

In connection with the Conference on Education in the South to be held in this city, April 16-18, there will be an exhibit to show what is being done with the \$1,000,000 appropriated by Mr. Rockefeller for the eradication

of hookworm disease in the South. It will consist of maps and charts showing the extent of hookworm disease throughout the world, and measures which are being taken against it in foreign countries as well as in the South.

The annual report of the Commission just issued shows that eleven States working under its direction and with money supplied from this source, have, in the last three years, treated nearly 400,000 persons.

Dr. Lee J. Hammett,

Recently of Gaffney, S. C., has been appointed resident physician of Mountain View Sanatorium, Catawba, Va. He was graduated from Jefferson Medical College, and has served in the Orthopaedic Hospital and Infirmary, Philadelphia; Allegheny General Hospital, Pittsburgh, and a year at Trudeau's Sanatorium, in the Adirondacks. Dr. Hammett is well known in this State, and we are glad to welcome him in our midst.

The Medical Inspection of Schools

In Orange County, Va., is progressing most favorably, there being only twenty out of the fifty-six schools in the county for the inspectors yet to visit. Drs. Flannagan and Brumfield, representing the State Board of Health in this inspection work, are carefully compiling the statistics in each case, and will tabulate them when complete. Every pupil is being examined as to height, weight, vision, hearing, teeth, mental alertness, and for hookworm disease.

The Graduate Nurses' Association of Virginia

Will hold their thirteenth annual convention at Charlottesville, April 2 and 3, Miss Agnes Randolph, of Virginia Hospital, Richmond, presiding. A report will be submitted at this meeting recommending the raising of the educational standard in the training schools in this State.

Clinical Lectures and Demonstrations.

Governors of the New York Skin and Cancer Hospital, located at Second Avenue, corner 19th Street, New York City, announce that Dr. Bulkley will give a series of lectures on Surgical Diseases of the Skin on the six Wednesdays in April and the first Wednesday in May, and Dr. Bainbridge will give a lecture on Surgical Treatment of Malignant Diseases, Wednesday, May 14.

These lectures, which will commence at 4:15 P. M., on the days indicated, will be illustrated by cases, models, colored plates, photographs, etc., and will be free to the medical profession upon presentation of their professional cards.

Southern Sociological Conference.

Quite a number of Virginians interested in the work of this Congress will attend its second annual convention in Atlanta, Ga., April 25-29. There were more than 500 delegates in attendance at its organization in Nashville, Tenn., last May, and Atlanta is preparing to entertain a much larger number. The six departments of the Conference are on public health, courts and prisons, child welfare, organized charities, the negro problem, and the church and social service. J. E. McCullough, of Nashville, is general secretary, while Dr. Ennion G. Williams, of Richmond, is the division secretary representing Virginia in the Conference.

Dr. William J. Robinson Honored.

Over two hundred physicians, writers, editors and others prominent in the life of New York City assembled at the Hotel St. Denis Friday, March 7th, at the banquet tendered to Dr. William J. Robinson by his friends and admirers, in recognition of his work as physician, editor, writer, lecturer and publicist, and in celebration of the tenth anniversary of the foundation of one of his journals, *The Critic and Guide*. Dr. A. Jacobi, President of the American Medical Association, acted as toastmaster in his usual happy vein.

Lt. Alfred P. Upshur, U. S. A.,

Son of Dr. John N. Upshur, of this city, has been transferred from Ft. Leavenworth, Kan., to Galveston, Tex., with Field Hospital No. 3.

Prevalency of Smallpox.

Of the thirty-two States and District of Columbia reporting to the Surgeon General of the Public Health Service, smallpox was notified in all the States with the exception of Arizona, District of Columbia, Florida and Maryland. During the first quarter of 1912, there were reported 8,850 cases with 81 deaths; during the second quarter, 5,734 cases with 53 deaths, and during the third quarter, 2,070 cases of smallpox with 58 deaths.

NEUROSINE

A Superior Neurotic, Hypnotic and Anodyne. Contains no Opium, Morphine or Chloral.

FEMALE NEUROSIS

Dioviburnia and Neurosine in the proportion of two to one are extensively prescribed.

DIOVIBURNIA

An Alterative, Anti-Spasmodic and Uterine Tonic of recognized merit.

DIOS CHEMICAL CO.

SAINT LOUIS

INDEX TO ADVERTISERS.

| | | | |
|---|----|---|----|
| Ammonol Chemical Company | 22 | Od Chemical Company | 23 |
| Bovine Company | 9 | Parke, Davis & Company | 7 |
| Bristol-Myers Company | 9 | Purdue Frederick Company | 2 |
| Breitenbach, M. J., Company | 11 | Phillips, Chas. H., Chemical Company | 13 |
| Brown, Dr. | 22 | Polk, R. L. & Company | 17 |
| Budwell Pharmacal Company | 24 | Poythress, W. P. & Company | 23 |
| Campho-Phenique Company | 9 | Richard Gundry Home | 15 |
| Chemi Company | 21 | Reed & Carnrick | 6 |
| Denver Chemical Company | 4 | Reliance Trading Company | 6 |
| Dios Chemical Company | 5 | Richardson, S. E. | 6 |
| Eli Lilly & Company | 8 | River Crest Sanitarium | 15 |
| Farwell & Rhines | 21 | Rudolph, M. C., Maternity Home | 15 |
| Farbenfabriken of Elberfeld Company | 10 | Sanson, F. S. | 6 |
| Farbwerke-Hoechst Company | 12 | Schering & Glatz | 10 |
| Fellows, Mr. | 3 | Sharp & Dohme | 24 |
| Fonticello Lithia Water Company | 19 | Smith, Martin H., Company (Glyco-Heroin) | 8 |
| Galeski Optical Company | 6 | Smith, Martin H., Company | 12 |
| Grace Hospital | 16 | Societies | 19 |
| Henry Pharmacal Company | 21 | Southern Pines Sanitarium | 15 |
| Hoge, Dr. | 21 | Storm, Dr. | 9 |
| Horsley, Dr. | 13 | St. Luke's Hospital | 18 |
| Hygeia Hospital | 16 | Telfair Sanitarium | 17 |
| Kress & Owen Company | 21 | The Maternity Home | 17 |
| Lambert Pharmacal Company | 3 | Tilden Company | 19 |
| Lewis-Gale Hospital | 18 | Tyree, J. S. | 12 |
| Medical Examining Board of Virginia | 22 | Valentine's Meat Juice Company | 24 |
| Mellier Drug Company | 23 | Virginia Hospital | 20 |
| Mellin's Food Company | 2 | Virginia Medical Semi-Monthly | 22 |
| Moody, Dr. | 17 | Wallau, George J., Inc. | 22 |
| Moore's Brook Sanitarium | 14 | Walnut Lodge Hospital | 15 |
| Mountain View Sanitarium | 17 | Westbrook Sanitarium | 14 |
| | | Williams, Dr. | 15 |

ATTENTION, DOCTOR!

You need a "Tycos" Sphygmomanometer for your office. The best physicians use them.

Office Machines, \$75.00; Pocket "Tycos" \$25.00
Express prepaid. Write for literature.

S. E. RICHARDSON,
200 E. Marshall Street,
Richmond, Va.

DOCTOR—Samples of cards, bill heads, statements, letter-heads, note-heads, account cards, temperature charts, envelopes and all printing required by the profession, free upon request; prices reasonable; parcels post shipments.

F. S. SANSON, Ellendale, Del.

The largest MANUFACTURING OPTICIANS in the South

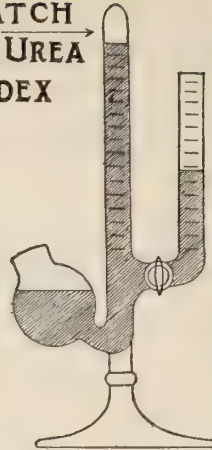
—HEADQUARTERS FOR—

Spectacles, Eye Glasses, Test Charts,
Artificial Eyes, & Optical Instruments.

Prescription Work Our Specialty.

THE S. GALESKI OPTICAL CO.,
Corner 8th and Main streets, Richmond, Va

WATCH
the UREA
INDEX



A SMALL ELIMINATION OF UREA WILL GIVE SYMPTOMS VARYING FROM A SLIGHT HEADACHE TO UREMIC CONVULSIONS

In **BRIGHTS** and other CASES of **NEPHRITIS** the UREA ELIMINATION Can be RAISED, using

NEPHRITIN
• RE-ZYME •

If Interested
SEND FOR
Samples and
Literature.

REED & CARRICK
42-46 GERMANIA AVE.
JERSEY CITY, N.J.

"DROP THE DROPPER"

THE POST SELF-FILLING PEN FILLS AND CLEANS ITSELF ANYWHERE AND EVERYWHERE.

"THE POST" DRINKS AT ANY WELL.

ALL that is required of the Post is to dip it into the ink-bottle, draw out the plunger, and the pen is ready for use. In the words of Governor Adams—"It requires little more trouble to replenish than to dip an ordinary pen into an inkstand." The pen is similar to an ordinary syringe, easy to fill and easy to clean anywhere, and under any circumstances.

The Post is fully guaranteed in all points of manufacture. Send for Catalog and Price List.

**WE TAKE YOUR OLD
PEN IN EXCHANGE**

AGENTS WANTED.

THE RELIANCE TRADING CO.

120 West 14th Street,

- - - New York City, N. Y.

